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BIOLOGIA CENTRALI-AMERICANA.

INSECTA.

RHYNCHOTA.

HEMIPTERA-HETEROPTERA.

VOL. II.

BY

G. C. CHAMPION, F.Z.S.

SMITHSONIAN
FEB 14 1979
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INTRODUCTION.

THIS Volume contains an enumeration of the species of the following Families of Rhynchota-Heteroptera—Tingitidæ, Phymatidæ, Aradidæ, Hebridæ, Hydrometridæ, Henicocephalidæ, Reduviidæ, Nabidæ, Anthocoridæ, Ceratocombidæ, Cimicidæ, Saldidæ, Pelogonidæ, Gelastocoridæ (Galgulidæ), Nepidæ, Naucoridæ, Belostomidæ, Notonectidæ, and Corixidæ. The first twelve of these belong to the Gymnocerata (Geocorisæ), concluding that portion of the work contributed by Mr. Distant in Vol. I., and the remainder to the Cryptocerata (Hydrocorisæ).

The Tingitidæ include a large number of species, all of small size, some of them having the pronotum inflated, the margins of the latter, and the scutellum and elytra also, being often more or less diaphanous, with very conspicuous nervures. But little attention has hitherto been paid to the tropical forms of this family, and it is therefore not surprising that sixty-six of the seventy-eight species enumerated prove to be new, with seven new genera. Lethierry and Severin in their Catalogue (1896) give 335 species for the whole world. Of the American genera characterized by Stål, all but three are represented.

The Phymatidæ is a well-marked family of small extent, its members having very strong raptorial anterior legs. Some of the species are gregarious, and they have the habit of secreting themselves in flowers for the purpose of securing the small insects that may come within reach. Three genera and nineteen species are enumerated, one of them, *Agreuocoris noualhieri*, being probably eastern, though said to be from Mexico; eight species are treated as new. Herr A. Handlirsch's Monograph of these interesting Hemiptera was issued immediately after the publication of my own enumeration of the Central-American forms; the lithographic plates accompanying his work were drawn by Baron Max v. Schlereth, and they are perhaps the most beautiful delineations of Heteropterous insects that have ever appeared.

The Aradidæ, so far as at present known, have the same number of representatives as the Tingitidæ within our limits. They are nearly all found under the bark of fallen or decaying trees, often in gloomy places in the forest. Some of them have the upper surface more or less coated with a hard pallid incrustation, which is moulded into peculiarly-shaped prominences on the head, pronotum, and scutellum, the use of which it is difficult to understand. Seventy-eight species are enumerated, with forty new, and five new genera.

The Hebridæ is a family of very limited extent, the species all being of subaquatic habits. Eleven species are here recorded, seven of them being treated as new.

The Hydrometridæ are spread over all parts of the world, many small islands having one or more representatives, and some of the genera are very widely distributed. They live upon the surface of fresh, brackish, or salt water. Within our limits, the subfamily Veliinæ, so far as can be judged from the collections obtained by our Editors, is much more numerous in species than the Gerrinæ; but as the latter are usually very difficult to secure, this may not really be the case. For the whole family (exclusive of the pelagic Halobatinæ, which are not dealt with here) forty species are enumerated, including twenty-nine previously undescribed, and two new genera.

The Henicocephalidæ is a widely distributed family including but few species. The single American genus is known under various different names. These insects have the head very peculiarly formed, the anterior legs raptorial, and the elytra uniformly membranous, so that they can be readily used for flight. Of the six species enumerated, all but one are treated as new.

The Reduviidæ is one of the most extensive families of Heteroptera. They are chiefly confined to the tropics, becoming much less numerous in temperate regions. Lethierry and Severin (1896) enumerate 1877 (counted up in their summary as 1835) species for the whole world, exclusive of the Nabidæ. Amongst the known Tropical-American genera there are a considerable number that do not extend so far north as the Isthmus of Panama, while, on the other hand, *Apiomerus*, *Zelus*, &c. are particularly well represented. These insects are all blood-suckers, *Conorrhinus* being said to attack man, and many of them have the power of exuding a viscous liquid for the purpose of retaining a secure hold of the species upon which they prey. The

flattened forms living under bark (*Leogorrus*, *Homalocoris*, &c.) emit a very offensive odour. 204 species are here recorded from Central America, seventy-eight of which are treated as new, with seven new genera.

The Nabidæ (by some authors treated as a subfamily of Reduviidæ) include about 150 known species, nearly half of which belong to the genus *Nabis*, and most of these being palæarctic. Some of the other genera are tropical. Fourteen species are enumerated from within our limits, two being described as new, with one new genus.

The Anthocoridæ are all of very small size, some of the smallest known Heteroptera belonging to this family. Very little attention has been paid to them by collectors in the tropics, owing perhaps to their extremely delicate structure, though the group was monographed by Dr. O. M. Reuter in 1884. Some species abound in the Antillean islands. The most characteristic genus in Central America is *Macrotrachelia*, which bears a strong superficial resemblance to some of the Thripidæ. Fifty-four species are enumerated, with thirty-two new, and seven new genera.

The Ceratocombidæ is represented in our collections by a single species of the typical genus *Ceratocombus*. Of the subfamily Schizopterinæ, however, there are five genera known from the Antilles or Tropical South America, all very peculiar forms; and one or more of these will sure to be found eventually in Central America, Prof. Uhler, indeed, having incidentally noted the presence of *Schizoptera* in our region. They are all minute, delicate insects, living upon the banks of streams, or in moss &c. Recent investigations have shown that they are particularly numerous in some of the smaller Antillean islands.

The Cimicidæ includes the bed-bug and its allies. Two species only have come to hand as yet from Central America, one of them being the universal pest mentioned, and the other infesting poultry, the latter being taken as the type of a new genus. As they are known to attack bats and various birds, many additional forms doubtless remain to be discovered.

The Saldidæ (termed Acanthiidæ by some authors) are represented in almost every part of the world by one or more species of the typical genus *Salda*, insects living upon the banks of ponds and rivers, as well as in salt-marshes, &c. The subfamily Leptopodinæ is confined to the eastern hemisphere. Ten species of *Salda* are here

enumerated from Central America, seven of these being treated as new; but many more must inhabit the region.

The Pelogonidæ, by some authors treated as a section of the Gelastocoridæ (=Galgulidæ, olim), is the first family of the division Cryptocerata. The various species are superficially very like the Saldidæ and have the same habits. Four are now known from within our limits, three of them being described as new.

The Gelastocoridæ (a term recently applied to the Galgulidæ, on account of the name *Galgulus*, from which it is derived, being long preoccupied in Aves) are particularly abundant in Central America, both genera being characteristic of the region. As already noted, the species of *Gelastocoris* (*Galgulus*) have much the appearance of small Batrachians, and they also have the power of leaping. Like *Mononyx*, they live on the banks of lakes and streams. For the two genera ten species are enumerated, but the new ones are not described, a monograph of the genus *Gelastocoris* being in course of preparation by Mons. A. L. Montandon of Bucarest.

The Nepidæ is a family of very limited extent, including the typical genus *Nepa* (the well-known "water-scorpion"), *Ranatra*, and a few allied forms. In Tropical America *Nepa* is replaced by *Curicta*, with two species in our region, where *Ranatra* has also two representatives.

The Naucoridæ are fairly numerous in Central America, but very little material has been obtained by us. These insects have, however, during recent years received a good deal of attention from M. Montandon, who has examined or described all the species contained in the principal continental museums, and the types of most of the Central-American ones have been lent us for figuring. Some of the species live in stagnant, others in fresh water. Nineteen are here recorded, one only being new.

The Belostomidæ include the largest known forms of Heteroptera, some specimens of the typical genus *Belostoma*, *B. grande*, measuring over four inches in length. Five genera and thirteen species are enumerated from Central America, all previously described. Most of the specimens in collections, at least of the genus *Belostoma*, appear to have been attracted to light, comparatively few, apparently, having been taken with the water-net. In the United States they are known by the name of "electric-light bugs."

The Notonectidæ, or "water-boatmen," are represented within our limits by three genera only, *Notonecta*, *Anisops*, and *Plea*, the first two by the same number of species. Of the eleven forms noticed, four of the *Anisops* are treated as new.

The Corixidæ are so poorly represented in our collections that very little can be said about them. Various *Corixæ* recorded from within our limits are unknown to me, and of several of the other species of that genus but few specimens are available for examination. Nevertheless, one of them, *C. mercenaria*, abounds to an incredible extent in the lagoons of the central plateau of Mexico, and this shows that we can have no idea at present of the actual number of Central-American forms. Thirteen species of *Corixa*, six of which are treated as new, and one of *Tenagobia*, are enumerated, but it is almost certain that some of the former will prove to be synonymous when the types can be compared.

The number of species for the nineteen families is 592, with 289 new and thirty new genera. For the first twelve of these families Lethierry and Severin (1896) give 3144 * species for the whole world, as against our 517. In Vol. I., for the families Pentatomidæ, Coreidæ, Lygæidæ, Pyrrhocoridæ, and Capsidæ, 1108 species are enumerated, with 581 new. The total number of Heteroptera recorded in this work (including the fifteen additions to Vol. I., noticed on p. 384) is therefore 1715, rather more than half of which have been treated as new.

We are again much indebted to the authorities of the Stockholm, Vienna, and Berlin Museums, as well as to Dr. E. Bergroth and Mons. A. L. Montandon, for the loan of various types or co-types, many of which are figured on our Plates. Of these latter, twenty-two have been required, six of which are coloured, the whole of them having been carefully drawn by Mr. E. Wilson of Cambridge.

Mr. Distant, in his Introduction to Vol. I., has already noted the sources from whence our collections have been derived, and his remarks apply equally well to the insects dealt with in the present volume.

G. C. C.

June 1901.

* These figures, however, are much too high in reality (many of Walker's so-called species being counted), notwithstanding that there is a mistake in adding up, the actual number being 3186.

ERRATA ET CORRIGENDA.

Page	Line	
51	20	for *serverini* read *severini*.
74	27	for *P.* read *H.*
158	39	for *P.* read *T.*
224	2	for *E.* read *M.*
263	17	*for* 2 ♂, 3 ♀ *read* 2 ♀, 3 ♂.
268	8	for *flavescens* read *flavicans*.
270	19	for *Z. taurus* and *Z. flavicans* read *R. taurus* and *R. flavicans*.
305		Erase the second footnote.
312	3	*for* "a single species from Mexico, which is now known" *read* "two species, the one from Mexico being now known."
317	7	*for* "With one exception, all" *read* All.
340	27	for *S. andinus* read *S. andina*.

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—— decens	I.	7	7
—— unifasciata	I.	8	7
—— spinosa	I.	9	8
—— setosa	I.	10	8
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* Wrongly marked ♂ on the Plate.

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—— sordidus, ♂	XVIII.	26, 27	303
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—— guttatipennis, ♀	XXI.	10	357
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—— ——, ♀	XXII.	7	368
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—— undulata, ♂	XXII.	10	370
—— americana, ♀	XXII.	11	370
Anisops carinatus, ♂	XXII.	12	372
—— pallipes, ♂	XXII.	13	372
—— albidus, ♂	XXII.	14	373
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* This name is preoccupied in the genus, and is here changed to *sexcincta*.

ZOOLOGIA.

Class INSECTA.

Order RHYNCHOTA.

Suborder HEMIPTERA-HETEROPTERA (continued).

Fam. TINGITIDÆ *.

This interesting family of Heteroptera is well represented within our limits, and includes some very remarkable insects, the modifications in the form of the pronotum in some of them (*Dicysta*, *Meyalocysta*, &c.) being suggestive of what is to be found in the Membracidæ. Of the seventy-seven species here enumerated, sixty-five are described as new. All the American genera characterized by Stål † are, however, represented, with the exception of *Stephanitis*, *Leptocysta*, and *Sphærocysta*, and seven others are added.

In the descriptions of the new genera and species the following terms are used for the several portions of the elytra: (1) discoidal area; (2) subcostal area (the costal area of Stål), the outer limit of this area corresponding with the exterior edge of the abdomen when the elytra are closed; (3) costal area (the costal membrane of Stål); (4) sutural area (the membrane of most authors, exclusive of the small narrow basal piece covered by the posterior portion of the pronotum). In the group Tingitini the scutellum is completely covered by the prolonged triangular posterior portion of the pronotum ‡ and the clavus is obsolete.

The terms "forma macroptera" and "forma brachyptera," used by Stål and others for forms of the same species, do not seem to be required here. All the specimens examined of the genera *Acanthochila*, *Leptobyrsa*, *Gargaphia*, &c. have short wings, and those of *Amblystira*, *Teleonemia*, *Monanthia*, &c. long wings. The sex of the specimens described below is only mentioned in a few cases, as it cannot always

* By G. C. CHAMPION.

† *Phyllotingis*, Walk. (=*Alyattes*, Stål), based upon a single species from the Amazons, belongs to the Aradidæ.

‡ Termed "scutellum" by Uhler and some of the older authors.

be ascertained without taking the insects off the cards upon which they are mounted. The males of some (or perhaps all) of the species have a pair of curved, clasping, pincer-like processes at the end of the abdomen *.

In some of the figures on Tab. II. our artist has incorrectly placed the left elytron uppermost: the right elytron usually overlaps in repose, but this is not always the case.

We are indebted to Prof. Aurivillius, of the Stockholm Museum, for the loan of many of Stål's types, including those of all his American genera; also to Herr A. Handlirsch for the whole of the Mexican Tingitidæ belonging to the Vienna Museum.

Subfam. *PIESMINÆ.*

PIESMA.

Piesma, Lepelletier de St.-Fargeau and Serville, Encycl. Méthod. x. p. 653 (1825); Stål, Enum. Hemipt. iii. p. 115.

Zosmenus, Laporte, Essai class. syst. des Hémipt. (in Guérin's Mag. Zool.) p. 49 (1832); Fieber, Europ. Hemipt. pp. 35, 116.

Aspidotoma, Curtis, Ent. Mag. i. p. 196 (1833).

Zosmerus, Douglas and Scott, Brit. Hemipt. p. 237 (1865).

A widely distributed genus, with very closely-allied forms in Europe and North America.

1. Piesma cinerea.

Tingis cinerea, Say, Descr. Heteropt. Hemipt. (New Harmony, Indiana, Dec. 1831) [1]; Trans. New York State Agric. Soc. 1857, p. 793 [2]; Complete Writings, i. p. 349 [3].

Piesma cinerea, Stål, Enum. Hemipt. iii. p. 116 [4].

Hab. NORTH AMERICA, United States [1–3], Illinois [4].—GUATEMALA, Panajachel, Zapote, Capetillo, Dueñas, Guatemala city, San Gerónimo (*Champion*).

Ten examples, not differing from a North-American specimen in the British Museum.

Subfam. *TINGITINÆ.*

Group **CANTACADERINI.**

PHATNOMA.

Phatnoma, Fieber, Ent. Monogr. pp. 30, 57 (1844); Stål, Enum. Hemipt. iii. p. 117.

The type of this genus is *P. laciniata,* Fieb., from the "East Indies."

The three Central-American species referred to it agree well with Fieber's structural figures, except that the middle coxæ are not so widely separated from the hind coxæ and the margins of the pronotum are less acutely bispinous. They agree in the following particulars:—

* Figured by Fieber, Göldi, and A. Dugès.

Rostrum extending to far beyond the metasternum; rostral groove parallel and nearly reaching the last ventral suture; buccal laminæ prominent, projecting beyond the front of the head, closing the rostral groove anteriorly; antennæ moderately long, widely separated, exceedingly slender, with joints 1 and 2 stouter, smooth, and short, 3 very elongate, 4 somewhat fusiform at the tip and longer than 1 and 2 united; head elongate-triangular, with three stout porrect frontal spines, two slender spines behind and two others in front, and slender, spiniform, antenniferous tubercles; pronotum with the base truncate and bisinuate, leaving the small scutellum exposed, the submembranous margins acutely dilated at the sides and in front, and closely reticulated, the areolæ more or less hyaline, the disc tricarinate, the outer carinæ abbreviated in front; elytra with well-defined clavus and sutural, discoidal, subcostal, and costal areas, the discoidal area limited within and without by a sharply raised carina, each bearing a single row of oblong areolæ, the outer carina extending to the base and the inner one to near the tip, the discoidal and subcostal areas with transverse raised lines, the costal area closely reticulated, with three or more rows of small areolæ, which are more or less hyaline; wings extending beyond the abdomen; legs slender.

In the allied genus *Cantacader* (= *Taphrostethus*, Fieb.) the pronotum is produced behind so as to completely cover the scutellum, and has five carinæ, and the elytra have an indistinctly defined clavus and a well-defined subcostal nervure, of which latter there is no trace in *Phatnoma*.

Pronotum with more or less broadly dilated margins, the outer carinæ on the disc parallel or subparallel; elytra suboval, the costal area extending broadly to the apex, without a series of larger areolæ along the margin.	
Pronotal margins broad; costal area with four rows of areolæ at the middle.	*marmorata,* n. sp.
Pronotal margins very broad, extending obliquely forwards; costal area with five rows of areolæ at the middle	*annulipes,* n. sp.
Pronotum with moderately dilated margins, the outer carinæ curving inwards; elytra regularly oval, the costal area narrowing towards the apex, with a series of oblong larger areolæ along the margin	*ovata,* n. sp.

1. **Phatnoma marmorata,** n. sp. (Tab. I. figg. 1; 1 *a*, the body beneath, ♂.)

Brownish-ochreous or sepia-brown, mottled with fuscous, the fuscous markings on the costal area of the elytra forming numerous vague transverse fasciæ, which sometimes terminate in a small black spot on the costal and inner margins, the apex of the clavus and some spots on the carinæ also black; the pronotal and elytral margins partly hyaline; the antennæ testaceous, with the apical joint partly or entirely black, the third joint sometimes infuscate; the legs testaceous, with the knees usually infuscate, the femora with a yellow annulus before the apex. Pronotum with the margins raised, and broadly, acutely dilated before the middle as well as in front, becoming narrow behind, the anterior dilatation terminating in a rather long slender spine; the disc closely punctured and tricarinate, the outer carinæ subparallel. Elytra moderately broad, suboval, broadly rounded at the apex; discoidal and subcostal areas equal in width, separated by a sharply raised carina, which extends forwards to the base, the discoidal area open behind and limited inwards by a curved carina which extends to near the tip of the elytra; the clavus and the sutural, discoidal, and subcostal areas with very small rounded punctiform areolæ, the discoidal and subcostal areas each with about five transverse or oblique pallid raised lines; costal area rather broad throughout, closely reticulated, there being four rows of areolæ at the middle, increasing to five or six behind.

Length $3\frac{1}{2}$–4, breadth 2 millim.

Hab. PANAMA, Bugaba, Caldera, and David in Chiriqui (*Champion*).

Sixteen specimens, all from the savanas of the low country.

2. **Phatnoma annulipes,** n. sp. (Tab. I. fig. 2.)

Lighter or darker ochreous-brown, the expanded margins of the pronotum and the elytra more or less mottled with fuscous, the fuscous markings on the costal area of the elytra sometimes forming fasciæ, the apex of the clavus and some spots on the carinæ and costa black; the pronotal and elytral margins partly hyaline; the antennæ testaceous, with the apical joint more or less black, the third joint sometimes infuscate; the legs testaceous, with the knees usually infuscate, the femora with a more or less distinct yellow annulus before the apex. Pronotum with the margins greatly raised, and very broadly and obliquely dilated forwards, angularly produced in front and also at the sides anteriorly, the anterior dilatation terminating in a short spine, the margin rounded behind the outer angle; the disc closely punctured and tricarinate, the outer carinæ parallel. Elytra moderately broad, suboval, broadly rounded at the apex; discoidal and subcostal areas separated by a sharply raised carina which extends fowards to the base, the discoidal area limited inwards by a curved carina which extends to near the tip of the elytra; the clavus and the sutural, discoidal, and subcostal areas with very small rounded punctiform areolæ, the discoidal and subcostal areas each with about five transverse or oblique pallid raised lines; costal area broad to the tip, closely reticulated, there being five rows of areolæ at the middle, increasing to six or seven behind.

Length $3\frac{1}{4}$–4, breadth $1\frac{9}{10}$–$2\frac{1}{10}$ millim.

Hab. MEXICO, Frontera in Tabasco (*H. H. Smith*); GUATEMALA, Cahabon in Vera Paz, San Isidro (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Five specimens. Very like *P. marmorata*, but with the margins of the pronotum still more broadly dilated and extending obliquely forwards (the pronotum appearing deeply emarginate in front), the costal area of the elytra broader and with an additional row of small areolæ. A specimen from Chiriqui is figured.

3. **Phatnoma ovata,** n. sp. (Tab. I. figg. 3; 3*a*, the body beneath, ♀.)

Lighter or darker brownish-ochreous, the outer carinæ of the pronotum and the costal margin and carinæ of the elytra spotted with black or fuscous, the inner basal margin of the clavus also blackish; the small areolæ of the pronotal and elytral margins hyaline; the legs and antennæ testaceous, the apical joint of the latter black at the tip. Pronotum with the margins a little raised, angularly dilated before the midde as well as in front, becoming narrow behind, the anterior dilatation terminating in a short spine; the disc closely punctured, tricarinate, the outer carinæ curved inwards in front. Elytra rather short, regularly oval, somewhat narrowly rounded at the apex; discoidal and subcostal areas equal in width, separated by a sharply-raised carina which extends forwards to the base, the discoidal area limited inwards by a moderately raised carina which extends to the apex of the subcostal area, both areas with several transverse or oblique raised lines, and, like the clavus and sutural area, with very small rounded areolæ; costal area moderately broad, becoming narrow at the tip, with a row of oblong areolæ along the margin and three rows of much smaller areolæ within.

Length $3\frac{1}{4}$–$3\frac{1}{2}$, breadth $1\frac{4}{5}$–2 millim.

Hab. GUATEMALA, San Isidro, Panajachel, Zapote, Capetillo, Dueñas (*Champion*).

Numerous examples, all from the Pacific slope. Differs from *P. marmorata* and *P. annulipes* in having the margins of the pronotum much less dilated, the outer pronotal carinæ not parallel, and the elytra regularly oval, with narrower costal area and a row of larger oblong areolæ along the margin.

Group **TINGITINI.**

DICYSTA, n. gen.

Rostrum reaching the end of the metasternum. Rostral groove broad and subparallel beyond the front coxæ, uninterrupted, closed in front, the sternal and buccal laminæ prominent. Antennæ glabrous, distant at the base, long and slender, joint 1 slightly thickened and twice as long as 2, 3 very elongate (4 broken off). Head with a short, obtuse frontal spine. Pronotum with greatly dilated, concave, reflexed, membranous margins, these being subvertical, shell-like, and rounded; hood oval, exceedingly large, completely covering the head, and connected posteriorly by the strongly foliaceous median carina with an equally large bladder-like process arising from the triangular posterior portion of the pronotum, the posterior process abruptly truncate in front, the margins and processes widely reticulated. Elytra entirely hyaline, twice as long as the abdomen, obliquely widening at the base, parallel from about the basal third to the rounded tip, the apical margin oblique; discoidal area about reaching the middle, curved and sharply raised externally, becoming more inflated behind; costal area broad; median nervure strongly sinuous; reticulation wide and subequal. Orifice not visible. Legs slender.

The single species referred to this genus resembles the most exaggerated forms of *Leptostyla* in the form of the pronotum, except that the foliaceous median carina is developed behind into a very large bladder-like process, similar to the hood in size and shape, this character also separating it from *Stephanitis*, *Corythucha*, &c. There is no trace of outer carinæ on the pronotum. The wings are short.

1. **Dicysta vitrea,** n. sp. (Tab. I. figg. 4; 4 *a*, profile.)

Moderately elongate, broad, glabrous; body testaceous, darker beneath, the membranous integument hyaline, with the nervures brown, those on the crest of the pronotal processes obscure fuscous, the elytra with a faint transverse fuscous fascia on the costal area at about one-third from the base, the tips of the tibiæ and the tarsi slightly infuscate; the whole of the reticulation wide. Elytra broader than the pronotum; discoidal area with three, the subcostal area with two, rows of areolæ; costal area with four rows of areolæ at the middle, diminishing to two at the base.

Length $3\frac{3}{4}$, breadth 2 millim. (♂.)

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

One example.

MEGALOCYSTA, n. gen.

Rostrum extending to the first ventral suture, or to a little beyond it. Rostral groove parallel behind the front coxæ, uninterrupted, closed in front, the sternal laminæ moderately prominent, the buccal laminæ long and very prominent. Antennæ distant at the base, inserted in deep cavities, long and slender, joint 1 stout, nearly twice as long as 2, 2 very short, 3 very elongate, obliquely truncate at the apex, 4 much longer than 1 and 2 united, articulated to the preceding on the lower side just before the apex, 1–3 smooth and almost glabrous, 4 pilose. Head with very short frontal spines. Pronotum with moderately broad, widely reticulated membranous margins; hood oval, enormously large and inflated, slightly constricted at the middle, covering the base of the head and extending halfway across the elongate-triangular posterior portion of the pronotum, the latter carinate down the centre. Elytra hyaline, extending to far beyond the abdomen, gradually widening to the basal third, the costal margin hollowed at the middle, the apex bluntly rounded; discoidal area nearly reaching the middle, raised externally; subcostal area narrow; costal area moderately broad; median nervure prominent and

strongly sinuous; reticulation very wide. Wings not extending beyond the abdomen. Legs slender, the knees distinctly swollen on the upperside. Orifice prominent, surrounded by a transverse raised carina.

The single species included in this genus may be readily distinguished from *Dicysta* and the allied forms by the articulation of the third and fourth joints of the antennæ. The pronotal hood is enormously large, long, and swollen.

1. **Megalocysta pellucida,** n. sp. (Tab. I. figg. 5; 5 *a*, profile; 5 *b*, antenna; 5 *c*, part of the body beneath.)

Moderately elongate, rather broad; body ferruginous, the disc of the pronotum sometimes blackish, the integument pale testaceo-hyaline and glabrous, the nervures of the pronotal hood more or less fuscous, the elytra usually with a faint curved fuscous fascia towards the apex, and sometimes the apical row of areolæ also slightly infuscate; the legs and antennæ ferruginous or testaceous, the apical joint of the latter black. Pronotum with the membranous margins rounded and feebly raised, with a single row of large tetragonal areolæ; the hood very widely reticulated, the areolæ tetragonal or pentagonal; the disc on each side of the hood closely punctured. Elytra with the sutural and costal areas subequal in width beyond the discoidal area; the costal area depressed, with three rows of large areolæ at the middle, diminishing to two at the base; subcostal area vertical, triseriate, the external areolæ very minute.

Length $4\frac{1}{2}$, breadth $2\frac{1}{4}$ millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Nine specimens.

CORYTHUCHA.

Corythucha, Stål, Enum. Hemipt. iii. pp. 119, 122 (1873).

The described members of this genus are all American (North and South), save one, and that will probably have to be separated. The species seem to be fairly numerous in the United States, and also in Central America, whence five are now enumerated *. They may be differentiated as follows:—

Pronotal hood large or moderately large, globose behind; median carina foliaceous.	
Marginal spines of the pronotum and elytra rather short and slender.	
Elytra broadly bifasciate; areolæ of the sutural area very unequal in size.	*fuscigera,* Stål.
Elytra with faint transverse darker lines, sometimes forming three fasciæ.	*decens,* Stål.
Elytra with a post-basal fascia and some spots on the nervures towards the tip	*unifasciata,* n. sp.
Marginal spines of the pronotum and elytra longer and stouter; elytra with a post-basal fascia and some spots beyond the middle	*spinosa,* A. Dugès.
Pronotal hood smaller, not globose behind; median carina feebly raised . .	*setosa,* n. sp.

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* *C. incurvata,* Uhler, recorded from "Mexico," does not belong to our fauna, it being from Lower California.

1. **Corythucha fuscigera.** (Tab. I. figg. 6 ; 6 *a*, profile.)

Tingis fuscigera, Stål, Stett. ent. Zeit. 1862, p. 323 [1].
Corythucha fuscigera, Stål, Enum. Hemipt. iii. p. 122 [2] ; Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 278 [3].
Monanthia lucida, Walk. Cat. Hemipt. Heteropt. vi. p. 191 (1873) [4].

Hab. North America, California to as far south as Cape San Lucas [3].—Mexico [3] (*mus. Holm.*[1 2], *Sallé*), Orizaba and Paso del Macho (*Bilimek, in Mus. Vind. Cæs.*), Vera Cruz [4] ; Guatemala, San Juan and Chiacam in Vera Paz, Panajachel, San Isidro, Dueñas, Capetillo (*Champion*), Coban (*Conradt*).

Not rare in Mexico and Guatemala, occurring on both the Atlantic and Pacific slopes. The types of Stål and Walker have been examined ; the latter is mutilated (as noted by Walker himself), the pronotal hood, &c. being broken off. We figure a specimen from San Juan in Vera Paz, a facsimile of Stål's type.

2. **Corythucha decens.** (Tab. I. figg. 7 ; 7 *a*, profile.)

Tingis gossypii, Burm. Handb. der Ent. ii. p. 259 (? Fabr.) [1].
Tingis decens, Stål, Stett. ent. Zeit. 1862, p. 324 [2].
Corythucha decens, Stål, Enum. Hemipt. iii. p. 123 [3] ; Uhler, P. Z. S. 1894, p. 204 [4] ; Proc. Calif. Acad. Sci. (2) iv. p. 279 [5].

Hab. North America, Lower California [5].—Mexico [1], Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Tabasco [3] (*coll. Signoret* [2]) ; Guatemala, Chacoj, San Joaquin, and San Gerónimo in Vera Paz, El Tumbador, San Isidro, Panajachel, Pantaleon, Capetillo, Guatemala city (*Champion*) ; Panama, Bugaba, Volcan de Chiriqui (*Champion*).—Antilles, Grenada [4].

In this small species the discoidal area of the elytra is more widely reticulated than in the other Central-American members of the genus. Some specimens have the median carina of the pronotum moderately foliaceous (it being much less prominent than the hood, when viewed laterally), and the nervures of the elytra distinctly marked with fusco-testaceous ; while others have the median carina very strongly foliaceous and the elytral nervures faintly marked with testaceous. Both forms were obtained at Pantaleon. *C. decens* is probably a variety of *C. gossypii* (Fabr.) ; the type is immature. An example from Guatemala city is figured.

3. **Corythucha unifasciata,** n. sp. (Tab. I. figg. 8 ; 8 *a*, profile.)

Body black, the pronotum brown, except in front ; the integument whitish or pale testaceous, the membranous margins of the pronotum and the elytra in great part hyaline ; the pronotum with the nervures of the hood and two transverse marks on the margins, and the elytra with a transverse fascia a little below the base, some small spots or some of the nervures near the tip, and sometimes one or two spots on the discoidal area, brownish or fuscous ; the legs and antennæ testaceous, the latter with the apical joint usually darker ; the pronotum with the margins, hood, median carina, and nervures, and the elytra with the costal margin to near the apex, and also the nervures, armed with rather short closely-set spines, those on the margins of the pronotum and elytra becoming shorter behind ; the antennæ with long bristly hairs. Pronotum with the membranous margins broad, reniform ; hood large, abruptly constricted at the middle, tapering in front and globose behind, widely reticulated, the reticulation becoming much closer at the sides in front ; median carina strongly foliaceous, the outer carinæ raised anteriorly. Elytra with

the discoidal area rather closely reticulated, tumid behind; costal area with three rows of areolæ, the areolæ large, except towards the base, tetragonal or pentagonal.

Length $3\frac{1}{4}$–$3\frac{1}{2}$, breadth 2–$2\frac{1}{8}$ millim.

Hab. MEXICO, Cuernavaca (*Bilimek, in Mus. Vind. Cæs.*); GUATEMALA, Cahabon in Vera Paz, El Tumbador, Cerro Zunil, Pantaleon (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Fifteen examples. Very like *C. spinosa*, but differing from it in having shorter and more slender spines along the margins of the pronotum and elytra, as well as on the nervures. The three specimens from Mexico are all more or less immature. Smaller than *C. fuscigera*, the elytra without a transverse fascia near the apex. *C. hispida*, Uhler, from Lower California, is also an allied form. A specimen from Chiriqui is figured.

4. **Corythucha spinosa.** (Tab. I. figg. 9; 9 *a*, profile.)

Tingis spinosa, A. Dugès, La Nat. (2) i. p. 207, t. 18. figg. 1–3 (1889) [1].

Hab. MEXICO (*Sallé*), Guanajuato (*Dugès* [1]), Orizaba (*Bilimek, in Mus. Vind. Cæs.*).

Differs from *C. fuscigera* in having much longer and stouter spines along the lateral borders of the pronotum and elytra, as well as on the nervures, the pronotal hood much less inflated behind and more widely reticulated at the sides in front, and the maculation of the apical half of the elytra in the form of scattered spots. The fuscous markings are probably variable, as none of our specimens quite agree with Dugès's figure in this respect. The details of structure of both sexes and the larva are figured by him. We figure a specimen from the Sallé collection.

5. **Corythucha setosa,** n. sp. (Tab. I. figg. 10; 10 *a*, profile.)

Body black, the pronotum brown, except in front; the integument whitish or pale testaceous, the membranous margins of the pronotum and the elytra hyaline; the pronotum usually with one or two transverse marks on the margins and the crest of the hood, and the elytra with a transverse fascia a little below the base, and generally some of the nervures near the tip, brownish or fuscous; the antennæ and legs testaceous; the pronotum with the margins, hood, and nervures, and the elytra with the costal margin to near the tip, as well as the nervures, armed with rather short closely-set spines; the antennæ with long bristly hairs. Pronotum with the membranous margins broad, reniform; hood moderately large, gradually tapering forwards, not constricted at the middle, the reticulation uniform; median carina very feebly foliaceous, becoming still lower in front, the outer carinæ also very little raised. Elytra with the discoidal area closely reticulated, slightly tumid behind; costal area with three rows of areolæ, the areolæ large, tetragonal or pentagonal.

Length $3\frac{1}{8}$–$3\frac{1}{2}$, breadth 2–$2\frac{1}{8}$ millim.

Hab. GUATEMALA, Quiché Mountains 7000–9000 feet, Volcan de Agua 8500 feet, Cerro Zunil, Calderas, Dueñas (*Champion*).

Not uncommon in Guatemala, at an elevation of from 5000–9000 feet above the sea. Differs from the other Central-American species in the much smaller, narrower, and gradually tapering pronotal hood, the very feebly raised median carina of the pronotum, and the less tumid discoidal area of the elytra. A specimen from Cerro Zunil is figured.

CORYTHAICA.

Corythaica, Stål, Enum. Hemipt. iii. pp. 120, 128 (1873).
Typonotus, Uhler, P. Z. S. 1893, p. 716 *.

1. **Corythaica carinata.** (Tab. I. figg. 11; 11 *a*, profile.)

Corythaica carinata, Uhler, P. Z. S. 1894, p. 203 [1].

Hab. GUATEMALA, Pantaleon (*Champion*).—ANTILLES, Grenada [1].

One specimen, not differing from Uhler's types in the British Museum.

GARGAPHIA.

Gargaphia, Stål, Enum. Hemipt. iii. pp. 119, 124 (1873).

In this genus the rostral groove is interrupted between the meso- and metasternum by a prominent, sinuous, transverse carina, a character separating *Gargaphia* from the rest of the Tingitidæ. Four species only from Central America belong to it. They may be differentiated thus:—

Costal area broad, with three or more rows of areolæ.
- Pronotal margins broadly, arcuately dilated; costal area irregularly reticulated . . . . . *patricia,* Stål.
- Pronotal margins broadly, angularly dilated; costal area with three or four oblique blackish nervures . . . . . *nigrinervis,* Stål.
- Pronotal margins narrower, very feebly rounded, and rather prominent in front; costal area irregularly reticulated . . . . . *panamensis,* n. sp.

Costal area narrower, with two rows of areolæ, increasing to three in the widest part; pronotal margins subangularly dilated before the base . . *iridescens,* n. sp.

1. **Gargaphia patricia.** (Tab. I. figg. 12; 12 *a*, part of the body beneath.)

Monanthia (*Phyllontochila*) *patricia,* Stål, Stett. ent. Zeit. 1862, p. 324[1].
Gargaphia patricia, Stål, Enum. Hemipt. iii. p. 125 [2].

Hab. MEXICO (*mus. Holm.* [1 2]), Cordova (*Sallé*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Atoyac in Vera Cruz (*H. H. Smith*); GUATEMALA, Chacoj, San Juan, Chiacam, San Joaquin, Balheu, and San Gerónimo in Vera Paz, Volcan de Atitlan, Capetillo (*Champion*); PANAMA, Volcan de Chiriqui, Peña Blanca (*Champion*).

One of the commonest and most widely distributed species of Tingitinæ in Central America. The transverse blackish or fuscous cloud on the pronotal margins is frequently obsolete, and the margin itself in some specimens is more narrowly foliaceous, with fewer areolæ. The elytra have a more or less distinct transverse blackish fascia on the irregularly reticulated costal area at about one-third from the

* *T. planaris,* Uhler, from the Island of St. Vincent, does not differ from *Corythaica monacha,* Stål (=*Tingis cyathicollis,* Costa), from Brazil, the types of which I have compared. The insect is beautifully figured by Costa.

base, and usually two of the oblique veins beyond similarly coloured. The apical joint of the antennæ, except at the base, and the tips of the tarsi are black. A specimen from Chiriqui is figured.

2. **Gargaphia nigrinervis.** (Tab. I. figg. 13 ; 13 *a*, part of the body beneath.)

Gargaphia nigrinervis, Stål, Enum. Hemipt. iii. p. 125 [1].

Hab. Panama, Bugaba, David, and San Lorenzo in Chiriqui (*Champion*).—Colombia, Bogota [1].

Found in plenty in the "tierra caliente" of Chiriqui. Described from a single example. In this species the anterior margin of the pronotum and the antennæ are sparsely pilose, and the discoidal area of the elytra is abruptly closed behind by a transverse oblique raised nervure. *G. nigrinervis* is extremely like *G. trichoptera*, Stål, also from Colombia; but it is smaller, and differs constantly from it in the angularly dilated pronotal margins. Both species have three or four oblique blackish nervures in the costal area of the elytra. A specimen from David is figured.

3. **Gargaphia panamensis,** n. sp. (Tab. I. figg. 14 ; 14 *a*, profile.)

Moderately elongate; ferrugineo-testaceous, the body black beneath, the margins of the pronotum and the elytra subhyaline; the antennæ testaceous, with the basal and apical joints black; the legs testaceous, with the tarsi and the greater part of the tibiæ infuscate; the margins of the pronotum and the costal margin of the elytra to about the middle very minutely denticulate. Head with three short slender frontal spines, meeting at the tip; antennæ long and slender, joint 1 three times as long as 2 and nearly as long as 4, 2 very short. Pronotum with the membranous margins moderately wide, rounded in front and behind and slightly recurved, with three rows of small areolæ; hood rather small, oval, compressed, angularly projecting in front; the three carinæ feeble, foliaceous, the interspaces closely, finely punctate. Elytra moderately long, arcuately widened from the base, broadly rounded at the tip; discoidal area narrow, barely one-third the length of the elytra, closely reticulated; subcostal area as wide as the discoidal, closely reticulated; costal area with four rows of areolæ at the middle, diminishing to three at the base, the areolæ, except towards the base, where they are small, moderately large and (like those of the sutural area) subequal in size.

Length $2\frac{1}{2}$, breadth $1\frac{1}{2}$ millim.

Hab. Panama, Caldera in Chiriqui (*Champion*).

One specimen. In this small species the rostral groove is interrupted between the meso- and metasternum by a prominent transverse carina, and the insect is, therefore, a true *Gargaphia*. The anteriorly constricted pronotum makes the membranous margins appear much broader in front. It is probable that fresh specimens have the pronotal margins ciliate.

4. **Gargaphia iridescens,** n. sp. (Tab. II. figg.* 1, 1 *a*.)

Moderately elongate; body black, the integument yellowish-white, the elytra with the discoidal area slightly infuscate at the base and apex, the apical portion of the nervure limiting it externally fuscous, the costal area and the greater part of the sutural area hyaline and iridescent, the costal area with three or four of the transverse nervures in the basal half blackish and the other nervures pale; the antennæ with joint 1 black and 2 testaceous (the others broken off); the legs testaceous, with the tarsi blackish at the tip; the

* Left elytron is incorrectly placed uppermost by our artist.

pronotum and the nervures on the basal half of the elytra set with erect hairs. Head with five slender spines; antennæ with joint 1 about twice as long as 2. Pronotum with the membranous margins raised and moderately wide, subangularly dilated before the base, and rapidly and obliquely converging thence to the apex, with two rows of areolæ; hood small, oval, slightly projecting in front; the three carinæ moderately foliaceous, the interspaces closely punctured; the triangular posterior portion membranous and reticulated. Elytra extending to far beyond the abdomen, oblong-oval, slightly constricted at the middle, broadly rounded at the apex; discoidal and subcostal areas closely reticulated, the discoidal area not reaching the middle, the subcostal area triseriate; costal area with two rows of large, mostly tetragonal areolæ, increasing to three in the widest part and diminishing to one at the tip; sutural area (the inner basal portion excepted) with large areolæ.

Length $3\frac{1}{5}$, breadth $1\frac{1}{2}$ millim.

Hab. North Mexico, Juarez on the Rio Grande, opposite El Paso (*Cockerell*).

We are indebted to Mr. Cockerell for a specimen of this species. It cannot be identified with any of the described North-American forms. *Tingis* (*Gargaphia*) *tiliæ*, Walsh, is perhaps an allied insect.

LEPTOSTYLA.

Leptostyla, Stål, Enum. Hemipt. iii. pp. 120, 125 (1873).

Numerous Central-American species are referred to this genus *, but the characters given by Stål require amplification to include them: the basal joint of the antennæ varies in length from about two to five times that of the second, the pronotal hood is sometimes very large, and the membranous margins of the pronotum are sometimes very broad, according to the species. The antennæ are long and slender, with a more or less elongate basal joint, and a still longer fourth joint. The pronotum is tricarinate, except in *L. tumida*. The elytra are gradually widened at the base, extending to far beyond the apex of the abdomen; the costal and sutural areas are more or less widely reticulated, the reticulation of the latter usually being very unequal towards the tip; the median nervure is strongly sinuate; the discoidal area is flat, sometimes slightly raised, and does not reach the middle, it being quite short in *L. vesiculosa*; the subcostal area (costal of Stål) is sometimes very narrow, with one or two rows of areolæ only, and sometimes nearly as broad as the discoidal, with three or four rows (as described by Stål) of closely packed small areolæ; the membranous costal area has two or more series of areolæ. The rostral groove is uninterrupted. The rostrum extends to the meso-metasternal suture in most of the species, sometimes shorter (*L. longipennis*) or longer (*L. tenuis*). The wings do not extend beyond the abdomen in any of the specimens examined.

a. Antennæ with joint 1 five times as long as 2. Pronotum with the membranous margins greatly dilated, vertical, and shell-like, the median carina strongly foliaceous, the hood large; elytra long and

* The description of an additional Mexican species is inserted on p. 48: the insect was not seen till these pages were in type.

divergent, subequally reticulated, obliquely unifasciate, the subcostal area biseriate behind; the margins of the elytra and the pronotum pilose; head without spines . . . . . *vesiculosa*, n. sp.

b. Antennæ with joint 1 about four times as long as 2 *. Pronotum with the membranous margins moderately wide, the median carina foliaceous, and the hood rather small; elytra long and unequally reticulated, the subcostal area biseriate; pronotum pilose in front; head with five spines . . . . . *longipennis*, n. sp.

c. Antennæ with joint 1 three or three and a half times as long as 2. Head with from three to five spines.

a'. Median carina of the pronotum strongly foliaceous; subcostal area of the elytra bi- or uniseriate.

a''. The membranous margins of the pronotum broadly, arcuately dilated, with three or four rows of areolæ; hood very large.

a'''. Outer carinæ of the pronotum obsolete; elytra widely and unequally reticulated, very obliquely unifasciate; pronotal and elytral margins without distinct setæ . . . . . *tumida*, n. sp.

b'''. Outer carinæ of the pronotum moderately foliaceous; elytra unequally reticulated, obliquely unifasciate; pronotal and elytral margins setose . . . . . *setigera*, n. sp.

b''. The membranous margins of the pronotum moderately wide, with two rows of areolæ; hood rather small.

c'''. Elytra widely and unequally reticulated, not fasciate; pronotum and elytral margins set with long fine hairs . . . . . *fimbriata*, n. sp.

d'''. Elytra very widely and unequally reticulated, obliquely unifasciate; pronotum and elytral margins indistinctly pilose . . *fuscofasciata*, n. sp.

b'. Median carina of the pronotum feebly foliaceous, sometimes more raised than the outer ones.

c''. The membranous margins of the pronotum broadly and subangularly dilated, closely reticulated, the hood large; elytra obliquely unifasciate, the costal area with about four rows of areolæ, the subcostal area triseriate . . . . . *elata*, n. sp.

d''. The membranous margins of the pronotum moderately wide, with two rows of areolæ, the hood small; costal area of the elytra narrower, with two rows of areolæ, the subcostal area biseriate.

e'''. Elytra narrowly and very obliquely unifasciate, the reticulation wide and unequal, the apical margin oblique . . . . . *lineata*, n. sp.

f'''. Elytra obliquely and faintly unifasciate, the reticulation unequal, the apical margin rounded . . . . . *gracilenta*, n. sp.

g'''. Elytra longer and not fasciate, but with the nervures darker on the apical third or more, the apical margin rounded.

*a*⁴. Antennæ and legs very elongate; elytra widening behind . . *angustata*, n. sp.

*b*⁴. Antennæ and legs moderately elongate; elytra (when closed) narrowing behind . . . . . *tenuis*, n. sp.

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* Foreshortened in our figure.

d. Antennæ with joint 1 two or two and a half times the length of 2. Pronotal hood short, considerably raised; head with two or three short frontal spines; subcostal area of the elytra with two to four rows of small, closely packed, areolæ.

c'. Pronotum with the membranous margins very broadly and arcuately dilated, with four rows of areolæ at the middle; elytra subequally reticulated, obliquely unifasciate . . . . . *dilaticollis*, n. sp.

d'. Pronotum with the membranous margins moderately wide, with two (or three) rows of areolæ; elytra unequally reticulated.

e''. Elytra subparallel, broad.

h'''. Elytra with the apex, the inner half thence to the base, and an oblique fascia on the costal area more or less fuscous . . . *bifasciata*, n. sp.

i'''. Elytra with the apex and the inner half thence to the base fuscous.

*c*⁴. Basal joint of the antennæ black . . . . . *divisa*, n. sp.

*d*⁴. Basal joint of the antennæ testaceous . . . . . *furculata*, n. sp.

f''. Elytra oval, narrow, constricted at the middle . . . . . *constricta*, n. sp.

1. **Leptostyla vesiculosa**, n. sp. (Tab. I. figg. 15; 15 *a*, profile.)

Elongate, widening behind; body black, the integument pale testaceous and hyaline, the elytra with a long oblique curved fascia extending from just behind the discoidal area to the apex, and the summit of the membranous portions of the pronotum, fuscous; the legs and antennæ pale testaceous, the apical joint of the latter (except at the extreme base) black; the nervures of the pronotal processes and also the margins, the nervures of the elytra, and the costa to beyond the middle, minutely denticulate and pilose. Head without spines; antennæ finely pilose, very elongate and slender, joint 1 fully five times as long as 2 and much shorter than 4, 2 very short, 3 one-half longer than 4. Pronotum with the membranous margins enormously dilated, rounded, vertical, and shell-like, widely reticulated; hood large, oval, greatly raised, extending to the middle of the disc and subangularly projecting in front; median carina foliaceous and enormously raised, forming a process larger than the hood, the outer carinæ not foliaceous, the interspaces closely punctured. Elytra long and divergent, widening from the base, and rounded at the tip; discoidal area slightly raised, small, not one-third the length of the elytra, open behind, and rather widely reticulated; subcostal area almost vertical, biseriate behind, uniseriate in front; costal area with five rows of areolæ at the middle, diminishing to two at the base, the areolæ (like those of the sutural area) moderately large and subequal. Rostrum about reaching the end of the metasternum.

Length 4, breadth of the pronotum $1\frac{1}{4}$, of the apex of the elytra $2\frac{3}{4}$ millim.

Hab. Panama, Bugaba (*Champion*).

Two examples, one of which has unfortunately lost the head and pronotum. Differs from its allies in the greatly distended vertical, shell-like, concave membranous margins of the pronotum, small discoidal area, widely divergent elytra, and very long basal joint of the antennæ. Viewed laterally, the pronotum appears to have four foliaceous appendages of about equal size, all of which are rounded at the summit.

2. **Leptostyla longipennis**, n. sp. (Tab. I. figg. 16; 16 *a*, profile; 16 *b*, part of the body beneath.)

Elongate, widening behind; body black, the integument whitish or pale testaceous and hyaline, the elytra with the nervures in the apical half, and also the transverse ones along the costal margin, and sometimes a spot on the discoidal area behind, fuscous or brownish; the antennæ testaceous, with the basal half of the first joint indeterminately fuscous, and the apical joint black; the legs testaceous, the apical joint of

the tarsi infuscate; the pronotum with the margins and carinæ anteriorly and the hood, and the elytra with the median carina, set with scattered, long, fine hairs, the costal margin of the elytra very minutely denticulate. Head with five slender spines; antennæ slightly pilose, slender and very elongate, joint 1 about four times as long as 2, 2 very short, 4 much longer than 1. Pronotum with the membranous margins moderately wide, recurved, converging anteriorly, with two rows of areolæ; hood rather short, oval, considerably raised; the long median carina moderately foliaceous, becoming lower in front, with a single row of transverse areolæ, the outer carinæ feebly foliaceous. Elytra long, widening from the base, rounded at the tip; discoidal area subfusiform, not nearly reaching the middle, closely reticulated; subcostal area narrow biseriate; costal area with two rows of areolæ at the base and three at the middle, the areolæ large; the areolæ in the apical half of the sutural area unequal in size. Rostrum not reaching the meso-metasternal suture, the metasternal laminæ extending a little inwards at this place.
Length 4, breadth (at apex of elytra) 2 millim.

Hab. GUATEMALA, Panajachel and Guatemala city, 5000–6000 feet (*Champion*).

Found in plenty at Panajachel. Larger than *L. fimbriata*; the elytra much more elongate, more closely reticulated, there being an additional row of areolæ in the costal area, the costal margin not ciliate (perhaps abraded); the antennæ longer and paler. The general shape is elongate-triangular.

3. **Leptostyla tumida,** n. sp. (Tab. I. figg. 17; 17 *a*, profile.)

Moderately elongate, broad, widening behind; body fuscous, the integument pale and hyaline, the elytra with a long oblique curved fascia extending from just behind the discoidal area to the tip (occupying the row of areolæ outside the median nervure), and the pronotum with a transverse fascia on the hood behind the middle and a spot on the median carina, fuscous; the antennæ and legs testaceous, the latter with the tips of the tarsi infuscate. Head with a slender frontal spine and two shorter ones below it; antennæ long and slender, joint 1 rather more than three times as long as 2 and nearly as long as 4, 2 very short. Pronotum with the membranous margins enormously dilated, recurved, and rounded, widely reticulated, there being about four rows of areolæ in the widest part; hood enormously large and inflated, oval, covering the whole of the disc of the pronotum and the head also (the eyes excepted), and connected posteriorly with the strongly foliaceous short median carina. Elytra moderately long, narrow at the base and then gradually widened (the basal portion of the costal margin appearing slightly sinuous), rounded at the tip; discoidal area rather short, somewhat piriform and slightly raised; subcostal area vertical, biseriate behind, uniseriate in front; costal area with three rows of areolæ at the middle, diminishing to one at the base, the areolæ very large and few in number; sutural area with the areolæ unequal in size, three of the inner ones being very large and pentagonal.
Length $3\frac{4}{5}$–4, breadth 2–$2\frac{1}{4}$ millim.

Hab. GUATEMALA, Cerro Zunil and Pantaleon (*Champion*).

Three examples. This insect resembles the European *Tingis pyri* in the form of the pronotum; but it has the discoidal area of the elytra much smaller and only slightly raised (instead of large and tumid), the basal joint of the antennæ elongate, &c. The pronotal hood covers the whole of the disc, the short median carina behind it being strongly foliaceous; the outer carinæ are obsolete.

4. **Leptostyla setigera,** n. sp. (Tab. I. figg. 18; 18 *a*, profile.)

Moderately elongate, narrow, widening behind; body black, the integument whitish and hyaline; the elytra with an oblique fascia extending from about the middle of the inner margin to near the tip and continuing round it, and the pronotum with some of the nervures of the hood and of the foliaceous carina behind it, fuscous; the antennæ testaceous, with the basal joint (and probably the apical one also) black; the legs

testaceous, the tarsi slightly infuscate; the pronotum with the margins and the summit of the dorsal appendages, and the elytra with the costal margin to near the apex and the nervures, set with short fine setæ. Head with three long spines—one frontal and two lateral; antennæ indistinctly pilose, long and slender, joint 1 three times as long as 2, 2 very short. Pronotum with the membranous margins broad, recurved, and rounded, with three rows of areolæ; hood very large, oval, widely reticulated; the median carina strongly foliaceous and equally raised, with two rows of areolæ at the middle, the outer carinæ long and moderately foliaceous; the triangular posterior portion membranous. Elytra long, widening from the base, the costal margin hollowed in the middle, the apex rounded; discoidal area slightly raised, somewhat fusiform, rather short, not very closely reticulated; subcostal area narrow, subvertical, uniseriate; costal area with two rows of areolæ at the base and three at the middle; the areolæ in the apical half of the sutural area very unequal in size, three of them being large and pentagonal.

Length $3\frac{3}{4}$, breadth $1\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

One specimen. Not unlike *L. gracilenta*; but differing from it in the setose margins of the pronotum and elytra, the pronotum with the hood very much larger, the median carina strongly foliaceous, and the membranous margins broadly, arcuately dilated and triseriate, the elytra with the discoidal area less closely reticulated and the costal margin more sinuous.

5. **Leptostyla fimbriata,** n. sp. (Tab. I. figg. 19; 19 *a*, profile.)

Elongate, narrow; body black, the integument white and hyaline, the elytra with the nervures in the apical half, and also the transverse ones along the costal margin thence to near the base, and a small spot on the median carina of the pronotum, fuscous; the antennæ fuscous, with the basal and apical joints black; the legs testaceous, the tarsi black; the pronotum with the margins, hood, and the three carinæ in front, and the elytra with the costal margin to beyond the middle and the nervures, set with long, fine, projecting hairs, those on the elytra arising from very minute denticules. Head with five slender spines; antennæ pilose, slender, elongate, joint 1 three and a half times as long as 2, 2 very short, 4 much longer than 1. Pronotum with the membranous margins moderately broad, recurved, converging in front, with two rows of areolæ; hood rather short, broad-oval, considerably raised; the long median carina strongly foliaceous, becoming lower in front, with a single row of large transverse areolæ, the outer carinæ moderately foliaceous; the posterior triangular portion membranous. Elytra long, widening from the base, rounded at the tip; discoidal area extending very little beyond the basal third, rather widely reticulated; subcostal area narrow, biseriate; costal area with two rows of areolæ at the middle and one at the base, the areolæ large, those at the base strongly transverse; the areolæ in the apical half of the sutural area very unequal in size, two of the inner ones being very large and pentagonal.

Length $3\frac{1}{3}$, breadth $1\frac{1}{3}$ millim.

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

One specimen. The chief characters of this species are the pilose margins of the pronotum and elytra, the large areolæ of the costal area of the elytra, uniseriate at the base and biseriate at the middle, and the moderately wide biseriate membranous margins of the pronotum.

6. **Leptostyla fuscofasciata,** n. sp. (Tab. I. figg. 20; 20 *a*, profile.)

Moderately elongate, narrow; body black, the integument whitish and hyaline; the elytra with an oblique fascia towards the apex, the nervures thence to the tip, and three transverse ones radiating from the costal margin before the middle, fuscous, the others pale testaceous, the apical areolæ also partly clouded

with fuscous; antennæ with the apical and the two basal joints black and the third joint testaceous; the legs testaceous, the knees and tarsi more or less infuscate; the hood, margins, and carinæ of the pronotum with very fine scattered hairs, the costal margin and median nervure of the elytra very minutely denticulate, and also with very fine hairs. Head with five rather short slender spines; antennæ long and slender, joint 1 three times as long as 2, 2 very short, 4 much longer than 1. Pronotum with the membranous margins moderately wide, recurved, converging anteriorly, with two rows of areolæ; hood rather short, broad-oval, considerably raised; the long median carina strongly foliaceous, with a single row of transverse areolæ, the outer carinæ moderately foliaceous. Elytra rather elongate, widening from the base, the costal margin hollowed at the middle, the apex rounded; discoidal area raised, short, rather widely reticulated; subcostal area almost vertical, biseriate behind, uniseriate in front; costal area with two rows of areolæ, those of the inner row becoming quite small towards the base, the others, like those in the apical half of the sutural area, very large.

Length $2\frac{1}{2}$, breadth $1\frac{1}{3}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

Five specimens. Differs from all the other allied forms in the very wide reticulation of the elytra, the areolæ being comparatively few in number, this character (and the black second joint of the antennæ) separating it at once from *L. gracilenta*, *L. angustata*, &c.

7. **Leptostyla elata,** n. sp. (Tab. I. figg. 21; 21 *a*, profile; 21 *b*, part of the body beneath.)

Moderately elongate, broad; body black, the disc of the pronotum sometimes brown; the integument whitish or pale testaceous, the dilated portions of the pronotum and the elytra hyaline; the elytra usually with three or four of the transverse nervures before the middle, an oblique curved stripe extending along each side of the median vein from the end of the subcostal area to the apex (in some specimens extending forwards along the sutural area), and two spots on the outer part of the discoidal area, fuscous or black; the antennæ testaceous, with the basal joint to near the tip, and the apical joint entirely, black, the second joint sometimes infuscate; the legs testaceous, with the apical joint of the tarsi black. Head with three long slender spines—one median and two lateral; antennæ long and slender, joint 1 about three and one-half times the length of 2, 2 very short, 1 and 4 subequal in length. Pronotum with the membranous margins very broadly subangularly dilated, recurved, rather closely reticulated, there being about five rows of areolæ at the middle; hood large, strongly raised, oboval; the three carinæ slightly foliaceous, the interspaces punctured, reticulated behind. Elytra rapidly and arcuately widening from the base and then parallel to near the tip, which is broadly rounded; discoidal area not half the length of the elytra, somewhat piriform, closely reticulated; subcostal area rather wide, triseriate, the areolæ small and rounded; costal area with four rows of areolæ, decreasing to three at the base, the areolæ, and those of the sutural area also, moderately large. Rostrum reaching the meso-metasternal suture.

Length $3\frac{1}{2}$–4, breadth 2–$2\frac{1}{2}$ millim.

Hab. MEXICO, Amula in Guerrero (*H. H. Smith*); GUATEMALA, San Isidro, Pantaleon, Capetillo, San Gerónimo (*Champion*).

Found in numbers in Guatemala, singly in Mexico. This insect is very like *Gargaphia nigrinervis* in general shape; but differs from it in having the rostral groove uninterrupted by a transverse carina between the meso- and metasternum, the basal joint of the antennæ longer, &c. Following Stål's arrangement, the species would have to be placed in his third section of the genus, near *L. furcata.* A specimen from San Gerónimo is figured.

8. **Leptostyla lineata,** n. sp. (Tab. I. figg. 22; 22 *a*, profile.)

Moderately elongate, rather broad; body black, the integument whitish and hyaline; the elytra with a narrow, oblique, smoky-black fascia extending from the median nervure a little beyond the middle to the apex, the nervures within the discoidal area and those between it and the suture fuscous, the others flavous; the antennæ with joint 3 testaceous, the other joints brownish-black; the legs testaceous, with the apical joint of the tarsi black. Head with three long slender spines—one median and two lateral; antennæ long and slender, joint 1 three times as long as 2 and slightly shorter than 4, 2 very short, 4 distinctly pilose. Pronotum with the membranous margins moderately wide, rounded, converging from the middle forwards, recurved, with two rows of small areolæ; hood short, compressed, strongly raised, angularly projecting in front; the three carinæ feebly foliaceous, the median carina continuous in front with the hood and becoming more strongly foliaceous behind, the interspaces sparsely punctured. Elytra moderately long, gradually widened from the base, the costal margin hollowed at the middle, the apex narrowly rounded, the apical margin oblique; discoidal area nearly reaching the middle, subfusiform, closely reticulated; subcostal area narrow, biseriate; costal area with two rows of areolæ, the areolæ large and few in number, becoming much smaller at the base; sutural area also with large areolæ, except in the basal half, which is closely reticulated.

Length 3, breadth $1\frac{1}{2}$ millim.

Hab. GUATEMALA, San Isidro (*Champion*).

One example. Easily distinguishable by the narrow, straight, oblique, smoky-black fascia of the elytra, and the large areolæ of the costal and sutural areas, those of the subcostal and discoidal areas being small and rounded.

9. **Leptostyla gracilenta,** n. sp. (Tab. I. figg. 23; 23 *a*, profile.)

Moderately elongate, narrow; body black, the integument whitish and hyaline; the elytra with part of the discoidal area, an oblique fascia beyond it, extending from the middle of the inner margin to the costal margin near the tip, and the nervures thence to the apex, fuscous; the antennæ testaceous, with the basal and apical joints black; the legs testaceous, the tarsi slightly darker. Head with five long slender spines; antennæ long and slender, the basal joint three times as long as the second, the latter short, joint 4 longer than 1. Pronotum with the membranous margins moderately wide and recurved, slightly converging forwards, with two rows of areolæ; hood moderately large, strongly raised, broad-oval, with but few areolæ; the three carinæ feebly foliaceous, the median carina more raised than the others, the interspaces punctured; the triangular posterior portion membranous and reticulate. Elytra long and rather narrow, slightly hollowed at the middle of the costal margin, broadly rounded at the tip; discoidal area somewhat fusiform, not half the length of the elytra, closely reticulated; subcostal area narrow, biseriate; costal area with two rows of rather large areolæ, the margin obsoletely denticulate; the areolæ in the apical half of the sutural area very unequal in size, two of the inner ones being very large and pentagonal.

Length $2\frac{1}{3}$, breadth 1 millim.

Hab. GUATEMALA, Pantaleon (*Champion*).

Four specimens. Allied to the North-American *L. oblonga* (Say), but much smaller, with two series of rather large areolæ in the costal area of the elytra from the base downwards, the median carina of the pronotum more raised than the outer ones.

10. **Leptostyla angustata,** n. sp. (Tab. I. figg. 24; 24 *a*, profile.)

Very elongate, narrow, widening behind; body black, the integument white and hyaline, iridescent near the suture; the elytra with the nervures whitish in the costal area to beyond the middle and more or less fuscous elsewhere; the antennæ testaceous, with the basal joint (except at the tip), and the apical one also, black; the legs testaceous, the apical joint of the tarsi infuscate at the tip. Head with five slender

spines; antennæ very long and slender, joint 1 three times the length of 2, 2 very short, 4 very much longer than 1. Pronotum with the membranous margins moderately wide, recurved, and converging forwards, with two irregular rows of small areolæ; hood small and short, somewhat compressed, subangular (if viewed in profile); the three carinæ long and feebly foliaceous, the interspaces closely punctured. Elytra very long and narrow, gradually widening from the base, rounded at the tip; discoidal area somewhat fusiform, rather short, closely reticulated; subcostal area very long and narrow, biseriate; costal area with two rows of areolæ; the areolæ in the apical part of the sutural area very unequal in size, two of the inner ones being very large and pentagonal. Legs very long and slender.

Length 3, breadth $1\frac{1}{5}$ millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

One example. A small, narrow, elongate species, the elytra gradually widening from the base; the costal area with two rows of areolæ, the nervures fuscous along the suture and towards the apex.

11. **Leptostyla tenuis,** n. sp. (Tab. I. figg. 25; 25 *a*, profile; 25 *b*, part of the body beneath.)

Elongate, very narrow; body black, the integument whitish and hyaline; the elytra usually with a small spot on the discoidal area behind, and the nervures in the apical third, testaceous; the antennæ testaceous, with the basal (except at the tip) and apical joints black; the legs testaceous, the apical joint of the tarsi infuscate. Head with five long slender spines; antennæ long and slender, joint 1 about three times as long as 2 and shorter than 4, 2 very short. Pronotum with the membranous margins moderately wide, recurved, converging from the base forwards, forming a rather prominent angle in front, and with two rows of areolæ; hood short and small, somewhat compressed, angularly projecting over the base of the head; the three carinæ feebly foliaceous, the interspaces closely punctured; the posterior triangular portion membranous. Elytra long and narrow, when closed not or scarcely wider than the pronotum, rounded at the tip; discoidal area long and subfusiform, nearly reaching the middle, closely reticulated; subcostal area very long and narrow, biseriate throughout; costal area with two rows of areolæ to the base; the areolæ in the apical part of the sutural area very unequal in size. Rostrum nearly reaching the end of the metasternum.

Length $2\frac{1}{2}$, breadth 1 millim.

Hab. GUATEMALA, Zapote, Capetillo, and Guatemala city (*Champion*).

Numerous examples. Differs from the allied forms in the very narrow elytra, these when closed being of about the same width as the pronotum. The pronotal hood is small and somewhat compressed. *L. tenuis* approaches *L. angustata*, but has less elongate elytra, these (when closed) being much narrower at the tip; the antennæ and legs much shorter, &c. A single damaged, discoloured specimen from Dueñas, Guatemala, perhaps belongs here: it has the basal joint of the antennæ pale; the elytra longer, with the nervures brownish, and the costal area with a single row of areolæ towards the base.

12. **Leptostyla dilaticollis,** n. sp. (Tab. II. figg. 2; 2 *a*, profile.)

Moderately elongate, rather broad; body black, the integument testaceous and partly hyaline, the elytra with a narrow oblique fascia extending from the median nervure beyond the middle to the apex, widening outwards, a small spot on the discoidal area behind, and a narrow curved streak on the subcostal area, nigro-fuscous; the nervures of the pronotal hood fuscous; the antennæ testaceous, the basal joint infuscate, except at the tip (the apical joint broken off); the legs testaceous, the tips of the tarsi infuscate. Head with two very short, slender, converging frontal spines; antennæ long and slender, joint 1 about

two and a half times the length of 2, 2 very short. Pronotum with the membranous margins very broadly and arcuately dilated, recurved, widest at the middle, and with four rows of areolæ at this part, the areolæ small; hood short, oval, considerably raised; the three carinæ feebly foliaceous, the interspaces closely punctured. Elytra gradually, arcuately widened from the base, the costal margin slightly hollowed at the middle, the apex rounded; discoidal area not reaching the middle, subfusiform, closely reticulated; subcostal area nearly as wide as the discoidal, triseriate; costal area with four rows of areolæ at the middle, diminishing to two at the base, the areolæ (like those in the sutural area) moderately large and not differing very much in size.

Length $2\frac{1}{2}$, breadth $1\frac{1}{2}$ millim.

Hab. GUATEMALA, Cahabon in Vera Paz (*Champion*).

One example. This insect approaches *L. bifasciata*, but has the pronotum more transverse, the membranous margins being much broader and with more numerous areolæ. The reticulation of the elytra is also more uniform and the markings quite different. The frontal spines are so small as to be scarcely distinguishable.

13. **Leptostyla bifasciata,** n. sp. (Tab. II. figg. 3; 3 *a*, profile.)

Moderately elongate, broad; body black, the integument testaceous and partly hyaline; the elytra with an oblique fascia before the middle, the apex (the large areolæ excepted), and the space between the costal area and the inner margin thence to the base, fuscous or brownish, a spot on the discoidal area behind and the nervures on the dark portions of the elytra black; the nervures of the hood and margins of the pronotum fuscous; the antennæ testaceous (the apical joint broken off); the legs testaceous, the tarsi black. Head with a single slender frontal spine and two other shorter spines beneath it, the latter approximating at the tip; antennæ long and slender, joint 1 about two and a half times as long as 2, 2 very short. Pronotum with the membranous margins broadly and arcuately dilated, recurved, with two rows of moderately large areolæ; hood rather large, broad-oval; the three carinæ feebly foliaceous, the interspaces somewhat sparsely punctate. Elytra moderately long, strongly, arcuately widening from the base, the costa thence to near the apex straight, the apex broadly rounded; discoidal area subfusiform, not reaching the middle, closely reticulated; subcostal area narrower than the discoidal, irregularly triseriate; costal area with three or four rows of areolæ at the middle, diminishing to two at the base, the outer and inner areolæ at the middle larger than the others; the areolæ in the apical half of the sutural area also very unequal in size, two of the inner ones being very large and pentagonal.

Length $3\frac{1}{4}$, breadth $1\frac{7}{8}$ millim.

Hab. GUATEMALA, Senahu in Vera Paz (*Champion*).

One specimen. Easily recognizable by the bifasciate elytra and the rather broadly dilated membranous margins of the pronotum.

14. **Leptostyla divisa,** n. sp. (Tab. II. figg. 4*; 4 *a*, profile.)

Moderately elongate, rather broad; body black, the integument whitish or pale testaceous and partly hyaline; the elytra with an oblique fascia towards the apex, the space between the costal area and the inner margin thence to the base, and the nervures beyond the fascia, smoky-black or fuscous; the antennæ testaceous, with the apical joint (except at the extreme base), and also the basal one, black; the legs testaceous. Head with two short slender frontal spines, approximating at the tip; antennæ long and slender, joint 1 two and a half times as long as 2 and much shorter than 4, 2 very short. Pronotum with the membranous margins moderately wide, recurved, converging anteriorly, with two rows of areolæ; hood short, oval, considerably raised; the three carinæ feebly foliaceous, the interspaces closely punctured. Elytra moderately long, arcuately widened from the base, rounded at the tip, the costal margin slightly hollowed at the middle; discoidal area rather short, subfusiform, closely reticulated; subcostal area nearly as wide as the discoidal, closely reticulated; costal area with three or four rows of

* Left elytron incorrectly placed uppermost by our artist.

areolæ at the middle, diminishing to two at the base; the areolæ in the apical half of the sutural area very unequal in size, two of the inner ones being very large.

Length $3\frac{1}{2}$, breadth $1\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

Twelve specimens. Not unlike the North-American *L. oblonga*; but without lateral spines on the head, the elytra broader and with more numerous areolæ in the costal area, the discoidal area much shorter.

15. **Leptostyla furculata,** n. sp. (Tab. II. figg. 5 *; 5 *a*, profile; 5 *b*, part of the body beneath.)

Moderately elongate, rather broad; body black, the integument whitish or pale testaceous and partly hyaline; the elytra with the apex broadly, the large areolæ excepted, and the space between the costal area and the inner margin thence to the base, and the nervures of the pronotal hood, smoky-black or fuscous; the antennæ testaceous, with the apical joint, except at the base, fuscous or black; the legs testaceous. Head with two short slender frontal spines, approximating at the tip; antennæ long and slender, joint 1 scarcely more than twice as long as 2, 2 very short, 4 nearly twice as long as 1. Pronotum with the membranous margins moderately wide, recurved, converging anteriorly, with two or three rows of areolæ; hood short, oval, considerably raised; the three carinæ feebly foliaceous, the interspaces closely punctured. Elytra moderately long, arcuately widened from the base, rounded at the tip, the costal margin slightly hollowed at the middle; discoidal area rather short, not nearly reaching the middle, subfusiform, closely reticulated; subcostal area nearly as wide as the discoidal, closely reticulated; costal area with three or four rows of areolæ at the middle and two or three at the base; the areolæ in the apical half of the sutural area very unequal in size, two of the inner ones being very large and pentagonal.

Length 3–$3\frac{1}{2}$, breadth $1\frac{1}{2}$ millim.

Hab. GUATEMALA, Senahu in Vera Paz, El Tumbador, Cerro Zunil (*Champion*); PANAMA, Bugaba (*Champion*).

Found in plenty at Bugaba, rarely elsewhere. Very like *L. divisa*, but easily separated from it by the entirely pale basal joint of the antennæ; the apex of the elytra, too, is more clouded with fuscous, the larger areolæ excepted. The single specimen from Senahu has the apex of the elytra clearer than usual.

L. furcata, Stål, from Rio Janeiro, the type of which is before me, is also an allied form; but it has more elongate and less parallel elytra, with the oblique fuscous fascia more distant from the apex, and the basal joint of the antennæ much more elongate. A specimen from Bugaba is figured.

16. **Leptostyla constricta,** n. sp. (Tab. II. figg. 6 *; 6 *a*, profile.)

Moderately elongate, narrow, narrowed behind; body black, the pronotum with the hood and the membranous margins whitish, and the carinæ and the tip of the triangular portion pale testaceous; the elytra testaceous, with a rather broad transverse fascia on the costal area before the middle, and the apex and sutural area, one or more of the central areolæ excepted, fuscous, the rest of the costal area whitish and hyaline, the subcostal area bordered with black externally; the antennæ with joints 1 and 2 obscure testaceous, 3 flavous, and 4 black; the legs entirely flavous. Head with two short converging spines in front; antennæ slender, comparatively short, joint 1 barely twice as long as 2, 3 about two and one-

* Left elytron incorrectly placed uppermost by our artist.

fourth times as long as 4. Pronotum with the membranous margins moderately wide, recurved, converging anteriorly, with two rows of areolæ; hood short, considerably raised; the three carinæ feebly foliaceous, the interspaces closely punctured. Elytra moderately long, oval, constricted at the middle, rounded at the tip; discoidal and subcostal areas closely reticulated, the discoidal area not or scarcely reaching the middle; costal area moderately wide, with two rows of areolæ; sutural area with the areolæ very unequal in size, one of the inner ones being larger than the rest.

Length 2–2½, breadth 1–1$\frac{1}{10}$ millim.

Hab. GUATEMALA, Pantaleon (*Champion*); PANAMA, Bugaba (*Champion*).

One specimen from each locality. This pretty little species differs from all the other Central-American members of the genus in the oval, medially constricted elytra and comparatively short antennæ. The Panama specimen (♀) is larger than the one from Guatemala, and has the elytra longer, with the subcostal area more widely reticulated. The Guatemalan specimen is figured.

LEPTOPHARSA.

Leptopharsa, Stål, Enum. Hemipt. iii. pp. 122, 126 (1873).

This genus, based upon two Tropical-American species, seems only to differ from *Leptostyla* in the very small transverse pronotal hood, in connection with the closer subequal reticulation of the sutural and costal areas of the elytra, the costal area having two rows of areolæ, increasing to three at the middle; the basal joint of the antennæ not more than twice the length of the second. The single species from Panama now added has the pronotum unicarinate only, and the rather stout spines on the head blunt at the tip.

1. **Leptopharsa unicarinata,** n. sp. (Tab. II. figg. 7; 7 *a*, profile.)

Moderately elongate, rather narrow; body black, the integument testaceous and subhyaline; the legs and antennæ testaceous (the apical joint of the latter broken off). Head with three rather stout, blunt, porrect spines—two lateral, behind, and a frontal one, placed more forwards; antennæ long and slender, joint 1 about twice as long as 2. Pronotum narrowed and constricted in front; the membranous margins narrow and of nearly the same width throughout, forming a prominent obtuse angle behind, with two rows of very small areolæ, diminishing to one in front; hood small, short, transverse as viewed from above, projecting a little in front; disc densely punctured, with a single feebly raised median carina; posterior triangular portion membranous. Elytra long, arcuately widened from the base and broadly rounded at the tip; discoidal area narrow, not nearly reaching the middle, scarcely wider than the subcostal area, both closely reticulated; costal and sutural areas somewhat closely and subequally reticulated, the costal area with three rows of areolæ at the middle, diminishing to two at the base.

Length 3, breadth 1$\frac{2}{5}$ millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

One example. Differs from *L. elegantula*, Stål, from Bogota (the type of which is before me), in the unicarinate pronotum, the membranous margins of which follow the outline of the pronotum itself, and appear narrowed and constricted in front; also in the shorter discoidal area, rather wider reticulation, and trispinous head.

MACROTINGIS, n. gen.

Rostrum extending to the meso-metasternal suture. Rostral groove slightly narrowing to the base of the mesosternum, and then widened out into an oval space on the metasternum, uninterrupted, closed in front, the sternal laminæ moderately prominent. Antennæ distant at the base, exceedingly elongate, extending to far beyond the apex of the elytra, slender, joint 1 very long, about twice as long as 4, equalling the femora in length, 2 very short, 3 nearly two and a half times the length of 1, 4 lanceolate, pilose, and stouter than the others. Head with a single long erect frontal spine. Pronotum with moderately wide membranous margins, a rather small oval hood, and a median and two lateral carinæ, the latter short, the posterior portion elongate-triangular. Elytra narrow, elongate, extending to far beyond the abdomen, hyaline; costal area bi- or uniseriate; discoidal area not nearly reaching the middle, the subcostal area very long and narrow; median nervure feebly sinuate. Legs very elongate and slender. Orifice not visible.

Two closely allied species belong to this genus. The extremely elongate antennæ with relatively very long basal joint (this being about twice as long as the apical one, and equalling the femora in length), long legs, prominent frontal spine, &c., distinguish it from *Leptostyla*, to which it is perhaps most nearly allied.

1. **Macrotingis biseriata,** n. sp. (Tab. II. figg. 8; 8 *a*, profile; 8 *b*, part of the body beneath.)

Elongate, narrow; ferruginous or testaceous, the head rufous, the disc of the pronotum in front and the body beneath black, the last two segments of the abdomen excepted, the elytra with a spot at the end of the discoidal area, and a faint oblique fascia towards the apex, sometimes extending forwards along the sutural area, fuscous; the antennæ testaceous, with the apical joint black; the legs testaceous, with the tarsi black; the pronotal margins and hood, and the costal margin and median nervure of the elytra to about the middle, set with very fine scattered hairs. Pronotum with the disc closely punctured and shining; the carinæ parallel, the outer ones abbreviated in front and not extending on to the convex portion of the disc; the hood small, projecting over the base of the head; the membranous margins rounded and recurved, converging a little in front and rounded behind, with two rows of areolæ, the areolæ of the outer row large and transversely tetragonal, those of the inner row small. Elytra very little wider than the pronotum, narrowing a little at the base and rounded at the apex; discoidal and subcostal areas, and the outer half of the sutural area to beyond the middle, closely reticulated, the rest of the reticulation wide and subequal; costal area with two rows of mostly tetragonal cells, diminishing to one at the apex; discoidal area limited within and without by a sharply raised nervure. Wings long, extending to a little beyond the apex of the abdomen.

Length 5, breadth $1\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui 3000 feet (*Champion*).

Found in abundance on the slopes of the Volcan de Chiriqui, in the vicinity of the coffee-plantations. The hairs on the costa of the elytra are usually missing, but the minute denticules from which they arise are always to be seen.

2. **Macrotingis uniseriata,** n. sp. (Tab. II. figg. 9 *; 9 *a*, profile.)

Very like *M. biseriata*, and similarly coloured, but a little smaller and narrower; the pronotal margins less dilated, with the outer row of areolæ much smaller; the costal area of the elytra narrower, with a single series of tetragonal areolæ throughout.

Length $4\frac{3}{4}$, breadth $1\frac{1}{4}$ millim.

Hab. GUATEMALA, Capetillo (*Champion*).

Three examples.

* Left elytron incorrectly placed uppermost by our artist.

LEPTODICTYA.

Leptodictya, Stål, Enum. Hemipt. iii. pp. 121, 127 (1873).

In this genus the reticulation of the elytra is close, the subcostal area (costal of Stål) is very narrow and biseriate, and the costal area has four depressed oblique transverse nervures or folds. The expanded opaque margins of the pronotum are formed by two layers of membrane meeting on the outer edge, this being easily seen when the insect is viewed sideways *. The rostrum about reaches the end of the metasternum. The wings do not extend beyond the abdomen.

The Central-American species may be thus tabulated:—

Discoidal area of the elytra with an adventitious nervure extending from the inner margin forwards; pronotum with the membranous margins straight, angularly projecting in front; antenniferous tubercles distinct: integument pale stramineous . . . . . *tabida*, H.-S.

Discoidal area of the elytra without adventitious nervure.

Pronotum with the membranous margins slightly rounded; antenniferous tubercles obsolete: integument in great part hyaline . . . . . *cretata*, n. sp.

Pronotum with the membranous margins straight and converging from the base; antenniferous tubercles distinct: integument in great part fuscous . . . . . *circumcincta*, n. sp.

1. **Leptodictya tabida.** (Tab. II. figg. 10 †; 10 *a*, profile.)

Monanthia tabida, Herr.-Schäff. Wanz. Ins. v. p. 86, t. 173. fig. 535 (1839)[1]; Fieb. Ent. Mon. p. 70, t. 6. fig. 1[2].

Hab. Mexico[1 2]; Guatemala, Coatepec, Capetillo (*Champion*).

Four specimens from Guatemala, agreeing well with Herrich-Sehäffer's figure. This species was unknown to Stål, who (Enum. Hemipt. iii. p. 134) suggested its affinity with *Leptostyla*, *Leptopharsa*, and *Leptodictya*. The insect evidently belongs to *Leptodictya*, near *L. fuscocincta*, Stål, from Rio Janeiro. In the present species the discoidal area of the elytra is very large, extending to beyond the middle, limited inwards by a sharply raised nervure, from the hinder part of which an oblique nervure extends forwards. The membranous margins of the pronotum are straight, converging from the base forwards, and project angularly in front. The elytra, when closed, are somewhat oval in shape, tapering from the middle. The head has a small spiniform antenniferous process on either side.

2. **Leptodictya cretata,** n. sp. (Tab. II. figg. 11; 11 *a*, profile; 11 *b*, part of the body beneath.)

Moderately elongate, rather broad; body black, the integument whitish and partly hyaline; the elytra with the nervures beyond the middle, and also those along the costal margin thence to the base, fuscous or

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* Of the five species described by Stål, one only (*L. fuscocincta*) has been seen by me.

† Left elytron incorrectly placed uppermost by our artist.

brownish; the interspaces of the pronotum in fresh specimens covered with a bluish-white incrustation, this colour extending to the discoidal area of the elytra; the antennæ testaceous, with the apical joint in great part black, the first joint and the apex of the third sometimes slightly infuscate; the legs testaceous, with the tarsi infuscate at the tip. Head with five long slender spines; antennæ long and slender, joint 1 two and a half times as long as 2 and about half the length of 4, 2 very short. Pronotum with the membranous margins moderately wide and slightly rounded, converging from near the base to the apex, somewhat flattened, with two or three rows of small opaque areolæ; hood rather short, angularly projecting in front, considerably raised; the three carinæ feebly foliaceous, the median carina continuous with the hood, the interspaces closely punctured. Elytra long, arcuately widened from the base and broadly rounded at the tip; discoidal area nearly reaching the middle, subfusiform, very closely reticulated; subcostal area very narrow, minutely biseriate; costal and sutural areas somewhat closely and subequally reticulated, the reticulation of the costal area abruptly becoming very much closer on the inner basal half, and on this part similar to that of the discoidal area. Wings extending to the apex of the abdomen, opalescent.

Length $3\frac{1}{2}$–4, breadth 2–$2\frac{1}{2}$ millim.

Hab. GUATEMALA, Purula in Vera Paz, Panajachel (*Champion*).

Found in plenty at Panajachel and sparingly at Purula. The Purula specimens are more or less discoloured and have the antennæ black, except at the base. Differs from all the allied forms in the very unequal reticulation of the costal area of the elytra, a broad space outside the subcostal area being much more closely reticulated than the rest.

3. **Leptodictya circumcincta,** n. sp. (Tab. II. figg. 12; 12 *a*, profile.)

Rather short, broad; fuscous, the sides of the body beneath, the head, and a small space behind the pronotal hood, black; the pronotum with the margins, and the elytra with a large oblong space on the inner part of the costal area about the middle, as well as a few of the minute areolæ at the base, pale testaceo-hyaline; the antennæ testaceous, with the basal joint infuscate (the apical joint broken off); the legs testaceous, with the tarsi infuscate. Head with five long spines, and a very short spiniform antenniferous tubercle on each side; antennæ very slender, moderately long, joint 1 about twice as long as 2, 2 very short. Pronotum with the membranous margins flattened, rather narrow, straight, converging from the base forwards, with two rows of small opaque areolæ; hood rather small, angularly projecting in front; the three carinæ feebly foliaceous, the median carina continuous with the hood, the interspaces closely punctured. Elytra moderately long, broad, arcuately widening to about the middle, the costal margin thence to near the apex straight, the apex broadly rounded; discoidal area large, extending to the middle, subfusiform, closely reticulated, limited inwards by a sharply raised nervure; subcostal area very narrow, biseriate; costal and sutural areas somewhat closely and subequally reticulated, the reticulation of the costal area becoming very much closer on the inner part towards the base.

Length 3, breadth $1\frac{7}{8}$ millim.

Hab. PANAMA, San Feliz in Chiriqui (*Champion*).

One specimen. Closely allied to *L. fuscocincta*, Stål, from Rio Janeiro (the type of which is before me); but much smaller and shorter, the pronotal hood larger, the elytra with an oblong space in the middle only subhyaline, the head with distinct spiniform antenniferous tubercles.

LEPTOBYRSA.

Leptobyrsa, Stål, Enum. Hemipt. iii. pp. 119, 123 (1873).

Stål referred a single species, *L. steini*, from Rio Janeiro, to this genus. His definition requires modification to include the five others now added, the form of the discoidal and subcostal (costal of Stål) areas varying according to the species, and the pronotal hood being sometimes obsolete. The genus chiefly differs from its allies in having the elytra at least twice as long as the abdomen, broad, more or less widely reticulated, and strongly rounded at the shoulders, as well as at the apex; the antennæ slender, with long basal joint; the rostral groove uninterrupted, broad on the meso- and metasternum and closed in front; the rostrum rather short; the head with, at most, three rather short frontal spines; the posterior portion of the pronotum abbreviated, and obtuse at the tip; the wings short or obsolete.

The five Central-American species may be thus differentiated :—

Pronotum with the membranous margins slightly rounded, and not constricted behind.
- Elytra very broad, sinuate at the base in front; discoidal area strongly tumid, the subcostal area very narrow, the costal area with six rows of areolæ; pronotum and elytra pilose; pronotal hood small, transverse. *latipennis,* n. sp.
- Elytra narrower, rounded at the base in front; discoidal area angularly raised, the subcostal area broader, the costal area with five rows of areolæ; pronotum and elytra not pubescent; pronotal hood larger . *translucida,* n. sp.

Pronotum with the membranous margins broadly dilated anteriorly and constricted behind; discoidal area of the elytra flat or only slightly raised.
- Elytra sinuate at the base in front; pronotum tricarinate, the hood small . *plicata,* n. sp.
- Elytra rounded at the base in front; pronotal hood obsolete.
  - Pronotum tricarinate . . . . . *chiriquensis,* n. sp.
  - Pronotum unicarinate . . . . . *nigriceps,* n. sp.

1. **Leptobyrsa latipennis,** n. sp. (Tab. II. figg. 13; 13 *a*, profile.)

Very broad, testaceous, the margins of the pronotum and the elytra pale testaceo-hyaline; the pronotum with the lateral margins and the carinæ, and the elytra with the entire margin and the nervures, closely set with long fine hairs; the antennæ and legs also thickly pilose, the hairs on the antennæ very long and projecting. Head with a rather long frontal spine and two shorter spines below it; antennæ long and moderately slender, joints 1 and 4 subequal in length, 1 about three and a half times as long as 2, 2 very short, 3 nearly twice as long as 1. Pronotum with the membranous margins moderately wide, projecting in front to beyond the eyes, recurved and slightly rounded, with small rounded areolæ—four rows in front, diminishing to two behind; hood small, transverse; the three carinæ feebly raised, the outer ones abbreviated behind and curving outwards, the interspaces dull and punctured; the triangular posterior portion abbreviated and rounded behind. Elytra very broad and somewhat ear-shaped, broadly rounded at the tip, and deeply sinuate in front; discoidal area large, strongly tumid; subcostal area very narrow, biseriate; sutural and costal areas somewhat widely, subequally reticulated, the costal area transversely creased and with about six rows of areolæ from the base to the middle.

Length 5, breadth of the pronotum $1\frac{1}{2}$, of the elytra $4\frac{1}{10}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

One example only of this remarkable species has been obtained. It is much broader and more pilose than the type of the genus, *L. steini*, Stål, from Brazil (the type of which is before me), and has the discoidal area of the elytra very much more tumid, the areolæ of the costal area more numerous, the pronotal hood very small and transverse, the basal joint of the antennæ more elongate, &c.

2. **Leptobyrsa translucida,** n. sp. (Tab. II. figg. 14; 14 *a*, profile.)

Moderately broad; ferrugineo-testaceous, the margins of the pronotum and the elytra hyaline; the median carina of the pronotum in the centre and an indistinct transverse fascia on the elytra a little below the base dilute fuscous, the nervures at these places black; the legs and antennæ testaceous, the latter with the basal joint somewhat ferruginous. Head with two slender converging frontal spines; antennæ long and slender, apparently glabrous, joint 1 about three times as long as 2, 2 very short, 4 nearly as long as 1. Pronotum with the membranous margins moderately wide, somewhat flattened, arcuate in front and slightly rounded externally, with large areolæ—two rows in front and one behind; hood considerably raised, small, angularly projecting in front; median carina foliaceous and continuous with the hood, the outer carinæ very feebly raised, the interspaces shining and closely punctured; the posterior triangular portion greatly abbreviated. Elytra broadly rounded at the base as well as at the apex; discoidal area rather small, angularly raised, open behind, and rather widely reticulated; subcostal area subvertical, triseriate; costal and sutural areas widely and subequally reticulated, except towards the base, the costal area with above five rows of areolæ at the middle, decreasing to three at the base, the costal margin very minutely denticulate in its basal third.

Length 3, breadth $2\frac{1}{3}$ millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

One example. Smaller than *L. steini*, and glabrous, the elytra not sinuate at the base, the outer carinæ of the pronotum much less prominent, the discoidal area of the elytra angularly raised, &c. The frontal spines are broken. The insect is apterous.

3. **Leptobyrsa plicata,** n. sp. (Tab. II. fig. 15.)

Moderately broad; testaceous, the margins of the pronotum and the elytra hyaline or pale testaceo-hyaline; the elytra with two more or less distinct transverse fasciæ (one before and one beyond the middle), the base, and a spot near the apex, fuscous; the entire margin of the elytra, and the margin of the pronotum in front, set with long bristly hairs, the elytral nervures set with shorter hairs; the antennæ with long fine projecting hairs, the legs sparsely pilose. Head with three slender frontal spines; antennæ very slender, moderately long, joint 1 nearly three times as long as 2, 2 very short, 4 about twice as long as 1, 3 not very much longer than 4. Pronotum with the membranous margins broadly and arcuately produced in front, abruptly constricted at the middle and very narrow and parallel thence to the base; hood very small, transverse, not raised; median carina feebly raised, the outer carinæ abbreviated and not very distinct, the interspaces dull and closely, finely punctate. Elytra very broad and somewhat ear-shaped, deeply sinuate in front and broadly rounded at the tip; discoidal area feebly raised, rather short, somewhat piriform, closely reticulated; subcostal area sloping and nearly as wide as the discoidal, quadriseriate; costal and sutural areas somewhat closely and subequally reticulated, the costal area transversely creased and with five to six rows of areolæ in the basal half; the main median nervure forming the outer limit of the subcostal area and only moderately sinuous.

Length 3–$3\frac{1}{4}$, breadth 2–$2\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba and Peña Blanca (*Champion*).

Six specimens of this peculiar species were obtained. In the shape of the elytra it resembles *L. latipennis* and in that of the pronotum *L. nigriceps*, &c.

4. **Leptobyrsa chiriquensis,** n. sp. (Tab. II. figg. 16; 16 *a*, part of the body beneath.)

Moderately broad; testaceous or ferruginous, the body beneath partly black, the margins of the pronotum and the elytra in great part hyaline or pale testaceo-hyaline; the elytra with a transverse fascia on the costal area before the middle, a spot on the outer part of the discoidal area, and most of the nervures in the apical half and one or two of those near the base, fuscous; the antennæ testaceous, usually with the apical joint black, sometimes entirely testaceous; the legs testaceous, the tarsi fuscous at the tip; the margins of the pronotum and elytra set with very short setæ, the antennæ with bristly hairs, the legs sparsely pilose. Head with three frontal spines—the upper median one short, and the two others longer and converging; antennæ moderately slender, joint 1 twice as long as 2 and shorter than 4, 2 short, 3 twice as long as 4. Pronotum with the membranous margins broadly and arcuately produced in front, constricted at the middle and narrow thence to the base, rounded behind; hood obsolete, the three carinæ feeble, the outer ones abbreviated behind, the interspaces dull and closely punctured. Elytra broadly rounded at the base as well as at the apex, the entire costa slightly rounded; discoidal area flat, sharply defined, somewhat piriform, rather broad, closely reticulated; subcostal area wide, rounded externally, quadriseriate; costal and sutural areas widely and unequally reticulated, the reticulation closer in the basal half, the costal area with three to four rows of areolæ at the middle.

Length $3\frac{1}{2}$, breadth $2\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Fifteen specimens. Larger than *L. translucida*, the reticulation of the elytra much wider and more unequal, the discoidal area broader and flat, the antennæ stouter, the margins of the pronotum dilated in front.

5. **Leptobyrsa nigriceps,** n. sp. (Tab. II. fig. 17.)

Moderately broad; testaceous, the head, the transverse pronotal calli, and the body beneath in great part, black, the margins of the pronotum and the elytra hyaline or testaceo-hyaline; the elytra with a transverse fascia below the base, the nervures in the apical half, and also some of those near the base, fuscous; the antennæ testaceous or ferruginous, with the apical joint (except at the base) black; the legs testaceous, with the tarsi black at the tip; the margins of the pronotum and elytra set with very short setæ, the antennæ with bristly hairs, the legs sparsely pilose. Head with three short frontal spines; antennæ moderately slender, joint 1 twice as long as 2 and a little shorter than 4. Pronotum with the membranous margins broadly and arcuately produced in front, strongly constricted at the middle and narrow thence to the base, rounded behind; hood obsolete, the median carina feebly raised, the outer carinæ obsolete; the disc and the posterior portion shining and closely punctured, the latter abbreviated and rounded behind. Elytra broadly rounded at the base as well as at the apex, the entire costa feebly rounded; discoidal area comparatively short, elongate-triangular, closely reticulated; subcostal area rather narrow, triseriate; costal and sutural areas widely and unequally reticulated, the costal area with about four rows of areolæ, diminishing to three at the base.

Length $3\frac{1}{4}$–$3\frac{3}{4}$, breadth $2\frac{1}{4}$–$2\frac{1}{2}$ millim.

Hab. GUATEMALA, Cerro Zunil (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Two specimens from each locality. Very like *L. chiriquensis*, differing from it in the unicarinate pronotum, the black head, and the narrower discoidal and subcostal areas of the elytra.

ACANTHOCHILA.

Acanthocheila, Stål, Enum. Hemipt. iii. p. 119 (1873).
Acanthochila, Stål, loc. cit. p. 127.

1. **Acanthochila armigera.** (Tab. II. figg. 19, ♂; 19 *a*, part of the body beneath, ♂; 20, ♀.)

Monanthia armigera, Stål, Sv. Vet.-Ak. Handl. ii. 2 (Bidr. till Rio Janeiro-Traktens Hemipter-Fauna, i.), p. 61 [1].
Acanthochila armigera, Stål, Enum. Hemipt. iii. p. 127 [2].
Monanthina spinuligera, Stål, Sv. Vet.-Ak. Handl. ii. 2, p. 61 [3].
Acanthochila spinuligera, Stål, Enum. Hemipt. iii. p. 127 [4].

Hab. MEXICO, Cuernavaca (*Bilimek, in Mus. Vind. Cæs.*), Teapa in Tabasco (*H. H. Smith*); GUATEMALA, Cubilguitz, Teleman, and San Juan in Vera Paz, El Tumbador, Pantaleon, Capetillo (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui, San Lorenzo, Peña Blanca (*Champion*).—BRAZIL, Rio Janeiro [1–4].

The numerous specimens from the above localities differ from Stål's type of *A. armigera*, from Rio Janeiro, in having the marginal spines of the pronotum longer and more acute; but in a long series there is a good deal of variation in this respect, the spines varying in number (6–8, the anterior one being sometimes bifid) and length. The insect also varies a good deal in size (length 3–5 millim.) and colour. The males are smaller and narrower than the females, and have a narrower transverse fascia on the elytra. The pronotum and elytral nervures are somewhat thickly clothed with long, fine, erect hairs. The basal joint of the antennæ is sometimes infuscate. The wings are short. The twelve specimens from Pantaleon are all very small and pallid. *A. abducta*, Buch. White, from the Amazons, is an allied form, with the pronotum, legs, and antennæ black. A male from San Juan in Vera Paz and a female from Chiriqui are figured, both having longer pronotal spines than Stål's type.

STENOCYSTA, n. gen.

Rostrum extending to the second ventral suture. Rostral groove parallel, rather narrow, uninterrupted, closed in front, the sternal and buccal laminæ not very prominent. Antennæ distant at the base, moderately long, thickly clothed with long fine projecting hairs; joint 1 stout, nearly twice as long as 2, 2 short and stout, 3 very elongate and slender, thickening a little towards the base, 4 about one-third the length of 3 and slightly longer than 1 and 2 united, articulated to the preceding on the lower side before the apex. Head with five short obtuse spines, the one in the middle behind porrect, and obtuse antenniferous tubercles, the eyes transverse and coarsely faceted. Pronotum tricarinate, with broadly dilated, angular, closely reticulated margins, and a short, compressed, prominent, subangular hood. Elytra broad oval, extending to far beyond the abdomen, with broadly dilated, closely reticulated margins; discoidal area large, extending to considerably beyond the middle, elongate-triangular, rounded externally behind; subcostal area narrower than the discoidal, the costal area nearly as wide as the two combined; median nervure sinuous beyond the discoidal area and extending to very near the tip of the elytra. Legs rather short, moderately stout, the tarsi slender, the knees swollen above. Orifice distinct, surrounded by a raised carina.

In the form of the antennæ this genus approaches *Megalocysta*, but differs from it in the structure of the pronotum, elytra, &c.

1. **Stenocysta pilosa,** n. sp. (Tab. II. figg. 18; 18 *a*, profile; 18 *b*, antenna.)

Moderately elongate, broad; opaque, fuscous, the small areolæ of the pronotal and elytral margins and of the pronotal hood hyaline; the elytra with a network of blackish lines on the nervures of the costal and sutural areas, and the nervures of the interspaces testaceous, the discoidal and subcostal areas also marked with black; the antennæ fuscous, with the third joint obscure ferruginous beyond the middle and the apical joint black; the surface thickly pilose, the pilosity extending to the legs, antennæ, and elytral margins, the latter appearing closely ciliate. Pronotum with the angularly dilated margins greatly raised, converging forwards; hood strongly raised, obliquely truncate and slightly projecting in front; median carina angularly raised anteriorly, and continuous with the hood, with a few transverse areolæ, the outer carinæ slightly curved inwards in front and terminating in the inconspicuous transverse pronotal calli, the interspaces on the disc closely punctured; the triangular posterior portion large and closely reticulated. Elytra with the areolæ of the discoidal and subcostal areas, and also those of the greater part of the sutural area, very small, those of the costal area being larger and more unequal in shape, the subcostal area quadriseriate, the costal area multiseriate; discoidal area not raised, flat, well defined.

Length 5, breadth 3 millim. (♀.)

Hab. Panama, Bugaba (*Champion*).

One example. Viewed laterally, the pronotum of this curious insect has four prominent, angular, foliaceous elevations. The costal area or dilated margin of the elytra has a marmorate appearance, due to the coloration of the nervures.

AMBLYSTIRA.

Amblystira, Stål, Enum. Hemipt. iii. pp. 120, 129 (1873).

The four Central-American species referred to this genus differ from the type, *A. pallipes*, Stål, from Rio Janeiro, in having the triangular posterior portion of the pronotum less obtuse at the tip, and the head without oblique interocular ridges (termed spines by Stål in his conspectus of the genera). The buccal laminæ are short, the cavity formed by them being almost open in front. The rostrum about reaches the meso-metasternal suture. The intercoxal portions of the meso- and metasternum are very broad, the rostral groove thus being very wide beyond the anterior coxæ. The antennæ and legs are slender. The pronotum is faintly carinate at the sides and uni- or tricarinate on the disc, the median carina being sometimes strongly raised behind. The form of the costal area is variable, it being in one species (*A. lævifrons*) confined to the apical portion of the elytra. The discoidal area is rather large in *A. lævifrons*, smaller in the other species. The wings nearly reach to the tip of the elytra. Our four representatives may be thus differentiated :—

Costal area extending to the base of the elytra; discoidal area rather short, flat.
  Pronotum strongly convex, obsoletely carinate at the sides; costal area extending narrowly to the base.
    Pronotum shining, tricarinate; elytra with a rather large space beyond the middle, and a streak on the costa near the base, hyaline . . . *fuscitarsis*, n. sp.

Pronotum dull, unicarinate; elytra with a long narrow hyaline space on the costal area beyond the middle . . . . . *opaca*, n. sp.

Pronotum feebly convex, finely carinate at the sides; costal area extending rather broadly to the base . . . . . *atrinervis*, n. sp.

Costal area confined to the apical portion of the elytra; discoidal area large, rather convex; elytra and pronotum shining, the latter unicarinate and very convex . . . . . *lævifrons*, n. sp.

1. **Amblystira fuscitarsis,** n. sp. (Tab. II. figg. 21, ♀; 22, the body beneath, ♂.)

Moderately long, the pronotum shining, the elytra opaque; black, the elytra with nearly the apical half, and a narrow space on the costa just below the base, hyaline, the inner nervures on the apical portion black or fuscous and the others testaceous or yellow; the antennæ flavo-testaceous, with the apical joint in great part black; the legs flavo-testaceous, with the apical joint of the tarsi fuscous or black, this colour sometimes extending on to the apices of the tibiæ. Head rugulose; antennæ slender, moderately long, joints 1 and 2 short, equal, 3 elongate, 4 four times as long as 2. Pronotum transversely convex, rapidly narrowing forwards and slightly constricted in front; coarsely, closely punctate and tricarinate, the median carina extending to the apex of the long, triangular, posterior portion and becoming very prominent behind, the outer carinæ short and extending very little beyond the posterior portion. Elytra narrowing from the middle and rounded at the apex; discoidal area flat, elongate-triangular, not reaching the middle, the nervures surrounding it not or very slightly raised; discoidal and subcostal, and part of the costal and sutural, areas with minute punctiform areolæ, the rest of the elytra with very large tetragonal or pentagonal areolæ; costal area very narrow to about the middle and not nearly reaching the apex.

Length $2\frac{1}{5}$–$2\frac{1}{2}$, breadth 1–$1\frac{1}{5}$ millim. (♂ ♀.)

Hab. GUATEMALA, El Tumbador, Cerro Zunil, Volcan de Atitlan (*Champion*); PANAMA, Peña Blanca (*Champion*).

Eleven specimens, all from the Pacific slope. Smaller and less elongate than *A. pallipes*, Stål, the type of which is before me; the head without interocular carinæ; the pronotum less constricted in front, with the outer carinæ short and the triangular posterior process pointed; the elytra shorter, narrowing from the middle, with the nervures surrounding the discoidal area scarcely raised and the costal area not reaching the apex. The male has a pair of prominent curved pincer-like processes at the end of the abdomen. A male and female from Volcan de Atitlan are figured.

2. **Amblystira opaca,** n. sp. (Tab. II. fig. 23.)

Narrow, moderately long, dull; black, the elytra with an elongate space on the costal area a little beyond the middle whitish hyaline, and the large areolæ on the apical third fusco-hyaline; the antennæ flavous, with the apical joint in great part black; the legs flavous, with the apical joint of the tarsi fuscous. Head rugulose; antennæ slender, moderately long, joints 1 and 2 short, 2 a little shorter than 1. Pronotum transversely convex, rapidly narrowing forwards and slightly constricted in front; coarsely, closely punctate and unicarinate, the carina not reaching the apex of the triangular posterior portion, this being somewhat obtuse at the tip. Elytra moderately long, bisinuate on the costal margin, and broadly rounded at the tip; discoidal area short, flat, the nervures surrounding it feebly raised; discoidal and subcostal areas, and the sutural area in part, closely reticulated, the apical third of the elytra and the

hyaline portion of the costal area with much larger areolæ, which are very unequal in size; costal area becoming exceedingly narrow towards the base and apex, uni- or biseriate at the widest part.
Length $2\frac{1}{3}$–$2\frac{1}{2}$, breadth 1–$1\frac{1}{10}$ millim.

Hab. GUATEMALA, San Isidro, Volcan de Atitlan, Rio Maria Linda (*Champion*).

Nine examples, all from the Pacific slope. Differs from *A. fuscitarsis* in the dull, unicarinate pronotum, the posterior process of which is more obtuse at the tip and less strongly carinate, and also in the reticulation of the elytra, the large areolæ in the apical third being smaller than in *A. fuscitarsis* and the other portion closely reticulated; moreover, the basal portion of the costa is entirely black. In certain lights faint traces of the usual outer pronotal carinæ are to be seen. In one specimen there are two rows of areolæ on the hyaline porion of the costa l area.

3. **Amblystira atrinervis,** n. sp. (Tab. II. fig. 24.)

Moderately long, dull, black, when fresh covered with a bluish-white waxy secretion, the elytra with the areolæ at the apex and also those in the costal area clear hyaline, the nervures of the latter to far beyond the middle yellowish-white, those at the apex and in the sutural area black; the antennæ with joints 1 and 2 black (the others broken off); the legs flavo-testaceous, with the femora slightly infuscate and the tarsi black. Head rugulose; antennæ with the basal joint longer than the second. Pronotum feebly, transversely convex, rapidly narrowing forwards and slightly constricted in front; densely, somewhat coarsely punctate, finely tricarinate, the median carina not reaching the tip of the triangular posterior portion, the latter acute, the margins finely carinate. Elytra moderately long, a little rounded on the costa below the base; discoidal and subcostal areas closely impressed with small punctiform areolæ, the discoidal area flat and not quite reaching the middle; costal area rather broad, the areolæ in the basal third small and uniseriate, large and biseriate in the widest part, the costal nervure very stout; sutural area with a very large pentagonal areole before the tip, the areolæ along the margin also large.
Abdomen with a pair of prominent curved pincer-like processes at the apex.
Length 3, breadth $1\frac{1}{2}$ millim. (♂.)

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

One example. Differs from the other species of the genus in the less convex, more distinctly margined pronotum, and the wider hyaline costal area of the elytra.

4. **Amblystira lævifrons,** n. sp. (Tab. II. fig. 25.)

Moderately elongate, narrow, shining; black, the pronotum with a small triangular spot in the middle in front and the apex of the triangular posterior process, and the elytra with the base, a median fascia (not extending to the sutural area), and the costal area for some distance beyond it, flavous; the antennæ flavous, with the apical joint black, except at the base; the legs flavous, with the tarsi fuscous. Head smooth; antennæ moderately long, slender, joints 1 and 2 equal. Pronotum transversely convex, constricted in front; coarsely, closely punctate and unicarinate, the carina extending to the tip of the posterior process and becoming very prominent behind. Elytra moderately long, dilated towards the middle, the costal margin bisinuate; discoidal area coarsely punctured, large, somewhat convex, extending to the middle, and surrounded by prominent nervures, the outer one sinuous and parallel with the costal margin; subcostal area extending to the costal margin, with two rows of coarse punctures; costal area commencing beyond the discoidal area, and continuous with the sutural area, a row of large tetragonal areolæ extending along the suture to the costal area, the apical half of the sutural area widely and unequally reticulated.
Length $2\frac{1}{4}$, breadth 1 millim.

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

Three examples.

LEPTOYPHA.

Leptoypha, Stål, Enum. Hemipt. iii. pp. 121, 129 (1873).

1. **Leptoypha binotata,** n. sp. (Tab. II. fig. 27.)

Elongate, narrow, dull; ferruginous, black beneath, the anterior margin of the pronotum, the spines on the head, and the buccal laminæ flavous, the depressed pronotal calli black, bordered in front with a whitish line; the elytra and pronotal process testaceous or brownish, the elytra with an oblique curved median fascia, the apical margin, and some of the nervures of the sutural area, blackish or fuscous, the apex of the discoidal area ochraceous; the antennæ ferrugineo-testaceous, with the apical joint in great part infuscate or black; the legs ferrugineo-testaceous, the tarsi sometimes fuscous. Antennæ rather long, moderately stout, joint 2 slightly shorter than 1, 3 about twice as long as 4, 4 longer than 1 and 2 united. Pronotum convex, obsoletely carinate at the sides in front and unicarinate on the disc, densely, coarsely punctate. Elytra elongate, slightly dilated below the base, constricted beyond the middle, with the apical portion narrower, the apices rounded; subcostal area rather wide, minutely triseriate; costal area excessively narrow, uniseriate. Wings nearly as long as the elytra.

Length $3\frac{1}{3}$, breadth 1–$1\frac{1}{4}$ millim.

Hab. GUATEMALA, Quiché Mountains 8000 feet, Cerro Zunil 5000 feet (*Champion*).

Three examples. Very like the type of the genus, *L. mutica* (Say), from Texas, Stål's specimen of which is before me; but larger and more elongate, with the antennæ longer and not so stout, the apical joint longer than the first and second joints united, the subcostal area of the elytra wider. A specimen from Cerro Zunil is figured.

2. **Leptoypha brevicornis,** n. sp. (Tab. II. fig. 28.)

Moderately elongate, dull, ochraceous, blackish beneath; the head fuscous, with the spines and buccal laminæ flavous; the pronotum mottled with fuscous, with three pale lines on the disc, the depressed calli black, bordered in front with a whitish line; the elytra with a large patch below the base, occupying the greater part of the discoidal area and a space outside it, and rather more than the apical third, mottled with fuscous; the antennæ fusco-ferruginous, the legs fusco-testaceous. Antennæ short and stout, joints 1 and 2 equal, 3 barely twice as long as 4, 4 the length of 1 and 2 united. Pronotum feebly transversely convex, rather sharply carinate at the sides in front, unicarinate on the disc, and with traces of two other obsolete carinæ behind, closely, coarsely punctate. Elytra moderately long, slightly dilated below the base, and narrowing thence to the apex, the apices rounded; subcostal area minutely triseriate; costal area narrow, uniseriate.

Length $2\frac{2}{3}$, breadth 1 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

One specimen. In this species the pronotum is less convex than in *L. mutica* and *L. binotata*, and more sharply carinate at the sides in front, with indications of two additional carinæ on the disc behind; the narrow costal area is also a little wider. The antennæ are shorter than in *L. mutica*.

TIGAVA.

Tigava, Stål, Sv. Vet.-Akad. Handl. ii. 2 (Bidr. till Rio Jan.-Trakt. Hemipt.-Fauna, i.), p. 63 (1858); Enum. Hemipt. iii. pp. 121, 130.

1. **Tigava pulchella,** n. sp. (Tab. II. fig. 26.)

Testaceo-ferruginous, the eyes, a transverse mark on each side of the pronotum near the apex, the sterna in part, and the entire abdomen black; the head rufous, with the decumbent lateral spines and the buccal

laminæ stramineous; the pronotum with the median and marginal carinæ, the anterior margin, and the triangular posterior portion stramineous; the elytra with the discoidal area in part, a long oblique streak extending from about the middle to the inner margin near the tip, and a patch on the outer part opposite the end of this, smoky-black, the outer part of the costal area thence to the base stramineous; the antennæ testaceous, with the apical joint (except at the extreme base) black, the second joint infuscate, and the third flavous at the tip; the legs testaceous, the tarsi black. Head with a single frontal spine; eyes rather large, prominent; antennæ with the elongate basal joint scarcely so long as the head and half the pronotum united. Pronotum densely and rugosely, the posterior portion more sparsely, punctate, tricarinate, and also sharply carinate at the sides from the base to the apex, with a transverse raised callus on either side anteriorly. Elytra very elongate, narrow, subparallel, extending to far beyond the apex of the abdomen; the discoidal area elongate-triangular, not reaching the middle, limited externally by a straight raised nervure and inwardly by an oblique one, aud partly open behind; the costal and subcostal areas very narrow, about equal in width, the costal area with a single row of small areolæ. Wings extending to beyond the abdomen.

Length 4, breadth 1 millim.

Hab. MEXICO, Vera Cruz (*H. H. Smith*).

Three specimens. Very like *T. præcellens*, Stål, from Rio Janeiro, the type of which is before me, but differing from it in having much smaller areolæ along the costal margin of the elytra, the costal area itself being very narrow and the discoidal area less distinctly margined behind. The basal joint of the antennæ is also rather less elongate, the eyes are more prominent, the general coloration is less uniform, and the insect itself is a little smaller and narrower.

2. **Tigava convexicollis,** n. sp. (Tab. II. figg. 29; 29 *a*, part of the body beneath.)

Head black, the decumbent lateral spines and the buccal laminæ flavous; the pronotum ferruginous or flavo-ferruginous, with the transverse calli black, the anterior margin flavous; the elytra testaceous, with a mark on the discoidal area, and a Λ-shaped patch beyond it, extending to the costal and inner margins, and partly enclosing a subtriangular pallid or ochreous space, smoky or black; the antennæ testaceous, with the apical joint black; the legs testaceous, the tarsi black; the abdomen and the sterna in great part black. Head with a single frontal spine; eyes small, moderately prominent; antennæ with the elongate basal joint fully as long as the head and half the pronotum united. Pronotum closely punctured, tricarinate, the outer carinæ not very distinct and becoming obsolete in front, and feebly carinate at the sides posteriorly, with a transverse callus on either side anteriorly. Elytra very elongate, narrow, extending to far beyond the apex of the abdomen, the costa slightly hollowed about the centre; the discoidal area not reaching the middle, limited externally by a straight raised nervure and inwardly by an oblique one, and partly open behind; the costal and subcostal areas very narrow, the costal area with a single row of small, oblong areolæ.

Length nearly 4, breadth 1 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

Four examples. Differs from *T. præcellens* and *T. pulchella* in the feebly and incompletely margined pronotum, the outer carinæ of which are also much less distinct. The basal joint of the antennæ is as long as in *T. præcellens*.

DICHOCYSTA, n. gen.

Rostrum reaching the end of the metasternum. Rostral groove parallel, uninterrupted, closed in front. Antennæ somewhat distant at the base, joints 1 and 2 very short, stout, 3 elongate and more slender, slightly tapering outwards, truncate at the tip, 4 lanceolate. Head with five rather long decumbent

spines, the lower two approximating at the tip, and short, obtuse antenniferous tubercles. Pronotum tricarinate, with a very large erect bulbiform process arising from the margin on either side, the two processes covering the greater portion of the disc and closed within by a foliaceous expansion of the outer discoidal carinæ, the triangular posterior portion long. Elytra extending to beyond the abdomen, somewhat oval, rounded at the tip; discoidal area very large, elongate-triangular, extending to beyond the middle; subcostal and costal areas very narrow, the latter constricted at one-fourth from the apex, and with a single series of long subhyaline areolæ. Orifice prominent, surrounded by a raised carina. Wings nearly as long as the elytra. Legs rather stout, the tibiæ sinuous within.

The remarkable Central-American insect from which the above characters are taken is perhaps nearest allied to *Teleonemia*; from which it differs in having the antennæ more distant at the base, with the third joint smoother and more slender, the legs stouter, and the pronotum furnished with a very large bulbiform process on each side. The closing of the latter by the foliaceous outer discoidal carina is best seen in immature examples. *Monanthia fasciata*, Fieb., and *Tingis globulifera*, Walk., both from India, have a somewhat similarly formed pronotum.

1. **Dichocysta pictipes,** n. sp. (Tab. III. figg. 1; 1 *a*, profile; 1 *b*, part of the body beneath; 2, var.)

Moderately elongate, narrow, dull; testaceous or brownish-ochraceous, mottled with black or fuscous, the body beneath and usually the bulbous processes of the pronotum blackish, the reticulation of the latter fuscous in pale specimens; the antennæ ferrugineo-testaceous, with the apical joint black; the legs ferrugineo-testaceous, mottled with fuscous. Antennæ moderately elongate, joint 2 slightly shorter than 1, 3 about three times as long as 4. Pronotum with the short anterior portion parallel, the anterior margin rounded at the middle and slightly produced, the posterior portion closely reticulated, the median carina indistinct between the bulbous processes. Elytra closely reticulated; the discoidal area surrounded by prominent nervures; subcostal area irregularly biseriate; costal area with the long areolæ separated by stout transverse nervures, which are usually in part black, the ante-apical constriction generally with a conspicuous black nervure.

Length $3\frac{1}{5}$–$3\frac{4}{5}$, breadth $1\frac{1}{5}$–$1\frac{1}{2}$ millim.

Hab. Guatemala, Panima and Cahabon in Vera Paz (*Champion*); Panama, Bugaba, David, San Feliz (*Champion*).

Var. The pronotum with the bulbiform processes smaller, less inflated, and more widely separated on the disc, the median carina distinct throughout. (Fig. 2.)

Hab. Guatemala, Balheu in Vera Paz, El Tumbador, Las Mercedes, Cerro Zunil, Zapote, Capetillo (*Champion*).

The variety is connected with the type by intermediate forms. Some specimens have the elytra more parallel than others. We figure a typical example from Bugaba, and a variety from Cerro Zunil.

TELEONEMIA.

Teleonemia, A. Costa, Ann. Mus. Zool. Nap. ii. p. 144 (1864); Stål, Enum. Hemipt. iii. pp. 122, 131 (1873).

Amaurosterphus, Stål, Hem. Fabr. i. p. 92 (1868).

Tingis, subgen. *Americia,* Stål, Enum. Hemipt. iii. p. 131.

Lasiacantha, Lethierry & Severin, Cat. Hémipt. iii. p. 18 (part.).

This genus includes numerous closely allied American species, eleven being

enumerated by Stål. Amongst the many new forms here described there are some connecting the typical species (with uniseriate costal area) with the two included by Stål in *Americia*, the latter having more numerous areolæ in the costal area. These insects are narrow and elongate in shape; the head usually has five more or less distinct spines, and obtuse, somewhat prolonged, antenniferous tubercles; the antennæ are contiguous at the base, rugulose, in some species distinctly pilose, stout, with the first two joints short, the third elongate, cylindrical, and obliquely truncate at the tip, and the fourth moderately long, more or less lanceolate or oval; the pronotum is tricarinate and margined, with or without a hood; the discoidal area extends to beyond the middle of the elytra; the subcostal and costal areas in the typical species are exceedingly narrow and uniseriate, sometimes wider and with more numerous areolæ; the elytra extend to far, and the wings to a little, beyond the abdomen; the rostrum varies in length, and the rostral groove in shape, according to the species. The third joint of the antennæ varies in length.

a. Costal area uniseriate throughout.
- *a'*. Rostrum reaching beyond the first ventral suture; pronotum carinate in the middle in front; antennæ moderately stout, indistinctly pilose. *ochracea*, n. sp.
- *b'*. Rostrum reaching to near the end of the metasternum; pronotum with a small hood in front; antennæ long and very stout, shortly pilose . *forticornis*, n. sp.
- *c'*. Rostrum reaching the meso-metasternal suture; pronotum carinate in the middle in front.
  - *a''*. Antennæ with joint 3 at least twice the length of 4.
    - *a'''*. Discoidal area glabrous, the areolæ deeply impressed; costal area very narrow, the areolæ small.
      - *a*⁴. Pronotum feebly tricarinate, very coarsely punctured; antennæ indistinctly pilose . . . . . *rugosa*, n. sp.
      - *b*⁴. Pronotum sharply tricarinate.
        - *a*⁵. Subcostal area biseriate; antennæ very distinctly pilose . . *pilicornis*, n. sp.
        - *b*⁵. Subcostal area uniseriate; antennæ indistinctly pilose.
          - *a*⁶. Pronotum coarsely punctured, subtruncate in front . . . *atrata*, n. sp.
          - *b*⁶. Pronotum rather finely punctured.
            - *a*⁷. Upper frontal spine semierect, moderately long . . . *bifasciata*, n. sp.
            - *b*⁷. Upper frontal spine porrect, short.
              - *a*⁸. Antennæ moderately elongate, joint 4 much longer than 1 and 2 united; costal area very narrow, the areolæ small . . . . . *prolixa*, Stål.
              - *b*⁸. Antennæ shorter, joint 4 rather stout, and about as long as 1 and 2 united; costal area wider, the areolæ small. *notata*, n. sp.
    - *b'''*. Discoidal area finely pubescent, the areolæ shallowly impressed; costal area wider, with larger areolæ; antennæ shortly pilose . *scrupulosa*, Stål.
  - *b''*. Antennæ with joint 3 not twice the length of 4, the antennæ themselves very short and stout; costal area with long areolæ, separated by transverse dark nervures; intercoxal portion of the metasternum very broad . . . . . *nigrina*, n. sp.

b. Costal area uniseriate to beyond the middle, irregularly biseriate towards the apex; pronotum carinate in the middle in front; rostrum reaching beyond the metasternum.

d'. Antennæ long and very stout; median carina of the pronotum raised in front . . . . . *cylindricornis*, n. sp.

e'. Antennæ shorter and not so stout; median carina of the pronotum not raised in front . . . . . *variegata*, n. sp.

c. Costal area biseriate to beyond the middle, irregularly triseriate towards the apex; pronotum with a small hood in front; median nervure of the elytra almost straight . . . . . *picta*, n. sp.

d. Costal area triseriate to beyond the middle, irregularly quadri- or quinquestriate towards the apex; pronotum with a small hood in front; median nervure of the elytra almost straight; discoidal area not separated from the sutural area . . . . . *albomarginata*, n. sp.

1. **Teleonemia ochracea**, n. sp. (Tab. III. fig. 3.)

Elongate, opaque; brownish-ochraceous, blackish beneath, the tarsi and the extreme apices of the tibiæ black, the third joint of the antennæ fuscous at the tip (the fourth broken off); the pronotum and under surface clothed with a mealy pubescence. Head with short, porrect frontal spines; antennæ moderately stout, joint 2 shorter than 1, 3 very elongate. Pronotum tricarinate, the median carina raised anteriorly and subangularly projecting in front, the marginal carinæ moderately prominent, the interspaces rugulose and finely punctured, reticulate behind. Elytra moderately long, gradually widening in their basal third, and constricted beyond the middle, the apices broadly rounded, the outer longitudinal nervures stout and cariniform; discoidal area with deeply impressed areolæ; subcostal and costal areas exceedingly narrow, uniseriate, the latter with very narrow, long areolæ. Rostral groove gradually widening beyond the anterior coxæ, the rostrum extending to beyond the first ventral suture.

Length $5\frac{1}{4}$, breadth $1\frac{2}{3}$ millim. (♂.)

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

One example. Recognizable by its uniform brownish-ochraceous colour, very long rostrum, and gradually widened rostral groove. The very long rostrum brings the species into Stål's subgenus *Amaurosterphus*, but the pronotum has not a subglobose hood in front.

2. **Teleonemia forticornis**, n. sp. (Tab. III. fig. 5.)

Elongate, narrow, opaque; blackish-fuscous, the spines on the head, the pronotal carinæ, the apex of the pronotal process, and the elytra pale brown; the latter with a black submarginal streak at the middle extending forwards, the apex broadly fuscous, and the intervening costal areolæ hyaline; the antennæ black, the legs ferruginous, with the tarsi darker. Head with an obtuse frontal spine; antennæ very stout and elongate, about as long as the elytra, shortly pilose, joints 1 and 2 equal, 4 much longer than 1 and 2 united. Pronotum tricarinate, the two outer carinæ converging in front and behind, and with a compressed hood in front, which projects angularly over the base of the head, the marginal carinæ becoming feeble behind, the interspaces coarsely, shallowly punctate. Elytra moderately long, very gradually widening in their basal half, slightly constricted beyond the middle, and broadly rounded at the apex, the outer longitudinal nervures stout and cariniform; discoidal area widely reticulated; subcostal area rather broad, biseriate; costal area exceedingly narrow to the middle and then widened, with

tetragonal moderately large areolæ at this part, the areolæ becoming very narrow forwards. Rostral groove narrow, subparallel, the rostrum nearly reaching the end of the metasternum.

Length $4\frac{1}{4}$, breadth $1\frac{1}{4}$ millim. (♂.)

Hab. PANAMA, Bugaba (*Champion*).

One specimen. In the form of the antennæ this insect approaches the Colombian *T. validicornis*, Stål, the type (♂) of which is before me; but the present species is not nearly so elongate, the antennæ are shorter, the pronotum has a compressed hood in front, and the reticulation of the basal half of the elytra is much wider and more uniform. The hairs on the antennæ are extremely short.

T. forticornis belongs to Stål's subgenus *Amaurosterphus*, but it has the rostrum shorter than in his *T. morio*, from Rio Janeiro (the type of which is before me), the costal area of the elytra broader behind, the antennæ much stouter, &c.

3. **Teleonemia rugosa,** n. sp. (Tab. III. fig. 4.)

Elongate, slightly shining; fuscous or blackish, the pronotum sometimes reddish, the elytra darker towards the tip, the spines on the head and the middle of the pronotum in front testaceous; the costal area for some distance before the apex, and sometimes some of the areolæ along the apical margin, hyaline; the antennæ black or obscure ferruginous, the legs obscure fuscous or ferruginous. Head with a slender decumbent frontal spine; antennæ stout, about three-fourths the length of the elytra, joint 2 slightly shorter than 1, 3 nearly three and a half times the length of 4, 4 a little longer than 1 and 2 united. Pronotum feebly tricarinate, the median carina sharply raised anteriorly and slightly projecting in front, the marginal carinæ feeble and scarcely visible from above, except in front; the interspaces very coarsely, rugosely punctured, reticulate behind, the calli prominent. Elytra moderately elongate, widening to about the middle, more or less constricted towards the apex, with the apices broad and somewhat obtuse; discoidal area with deeply impressed areolæ; subcostal and costal areas very narrow, the uniseriate areolæ of the costal area very small to beyond the middle, becoming larger towards the apex, the subcostal area irregularly biseriate behind. Intercoxal portion of the metasternum oval, the rostral groove narrower on the mesosternum, the rostrum extending to the meso-metasternal suture. Legs rather stout.

Length $4\frac{1}{2}$–$4\frac{4}{5}$, breadth $1\frac{1}{2}$–$1\frac{2}{3}$ millim.

Hab. GUATEMALA, Panzos and Zapote (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Five specimens. Distinguishable by the coarsely, rugosely punctured, feebly carinate pronotum, the median carina only being prominent in front, the moderately stout antennæ, and the medially dilated elytra.

An example from Panzos is figured.

4. **Teleonemia pilicornis,** n. sp. (Tab. III. fig. 6.)

Elongate, narrow, subparallel, opaque, blackish-fuscous; the elytra with a submarginal black streak extending from the middle forwards, the costal areolæ from the middle to near the apex (the third from the end excepted) and also those towards the base, yellowish-hyaline, the areolæ along the apical margin also pale; the antennæ fusco-ferruginous, with the apical joint black; the legs ferruginous, with the tarsi black; the head, pronotum, and under surface clothed with a mealy pubescence. Head with a very short indistinct frontal spine; antennæ stout, moderately long, densely and distinctly pilose, joints 1 and 2 subequal, 4 longer than 1 and 2 united. Pronotum tricarinate, the outer carinæ converging in front

and behind, the median carina subangularly projecting in front, the marginal carinæ moderately prominent, the interspaces rugulose and finely punctured, reticulate behind. Elytra elongate, constricted beyond the middle, and distinctly dilated at the apex, the apices broadly and bluntly rounded; discoidal area with deeply impressed areolæ; subcostal area narrow, biseriate; costal area narrow, uniseriate, the areolæ oblong. Rostral groove rather wide and subparallel beyond the anterior coxæ, the rostrum extending to the meso-metasternal suture.

Length 4, breadth $1\frac{1}{4}$ millim. (♂.)

Hab. GUATEMALA, Zapote (*Champion*).

One example. Differs from *T. prolixa* and other allied Central-American species in the densely, distinctly pilose antennæ, the pilosity being especially noticeable on the third joint. In other respects the insect is very like *T. prolixa*, except that the antennæ are stouter, the outer pronotal carinæ are more curved, the subcostal area of the elytra is biseriate, and the series of hyaline areolæ on the costal area is interrupted behind.

5. **Teleonemia atrata,** n. sp. (Tab. III. fig. 7.)

Very elongate, narrow, widening a little behind, opaque; black, the constricted anterior portion of the pronotum ferruginous in the middle and flavous at the sides, the marginal carinæ of the pronotum, the costal margin of the elytra to beyond the middle, and the apices of the tibiæ obscure ferruginous; the head, the pronotum in front, and the body beneath with a whitish mealy pubescence. Head with a short, stout, obtuse frontal spine; antennæ moderately stout, about two-thirds the length of the elytra, joint 2 slightly shorter than 1, 4 considerably longer than 1 and 2 united. Pronotum elongate, the constricted anterior portion relatively long and subparallel, the anterior margin almost straight; tricarinate, the marginal carinæ not prominent, the interspaces coarsely, rugosely punctured. Elytra flat, very long and narrow, widening behind, the costal margin slightly hollowed beyond the middle, the apices broadly rounded; discoidal area with very deeply impressed punctiform areolæ; subcostal and costal areas exceedingly narrow, uniseriate, the areolæ of the costal area long and narrow, and scarcely visible from above. Rostral groove narrow, parallel, the rostrum extending to the meso-metasternal suture.

Length 5, breadth $1\frac{1}{3}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

One female example. Very like *T. aterrima*, Stål, the type of which, from Bogota (and a second specimen from the Amazons, in the Oxford Museum), is before me; but differing from that species in its much narrower shape, the narrower intercoxal portion of the metasternum, the rugosely punctured pronotum, the anterior margin of which is not produced in the middle (as in *T. aterrima*), and the relatively shorter apical joint of the antennæ. In *T. aterrima* the apical joint of the antennæ is about half the length of the third, the third being as long as in the present species.

6. **Teleonemia bifasciata,** n. sp. (Tab. III. figg. 8; 8 *a*, profile.)

Moderately elongate, dull, fuscous or brownish-ochraceous, darker beneath; the elytra with a more or less distinct irregular transverse fascia before the middle (occupying about half the discoidal area) and another before the apex infuscate or black, the base (including the pronotal process), a space at the sides beyond the middle, and some of the areolæ at the tip, yellowish or pale testaceous; the antennæ fuscous or obscure testaceous, with the apical joint black; the legs testaceous, with the tarsi infuscate; the pronotum

and under surface clothed with a mealy pubescence. Head with short frontal spines, the upper median spine rather stout and semierect; antennæ moderately stout, extending to a little beyond the base of the elytra, joints 1 and 2 equal, 4 longer than 1 and 2 united. Pronotum sharply tricarinate, the marginal carinæ also prominent, the anterior margin subangularly projecting in the middle in front, the interspaces rugulose and finely punctured, reticulate behind. Elytra moderately long, constricted behind the middle, and rounded at the apex, the outer longitudinal nervures stout and cariniform; discoidal area with deeply impressed areolæ; subcostal and costal areas very narrow, uniseriate, the costal area with small oblong areolæ, which are distinct to the base, those between the two transverse fasciæ being hyaline. Rostral groove wide and subparallel behind the anterior coxæ, the rostrum extending to the meso-metasternal suture.

Length 4–4¼, breadth 1¼ millim.

Hab. GUATEMALA, Chiacam in Vera Paz (*Champion*); PANAMA, Bugaba (*Champion*).

Three examples. Differs from *T. notata*, &c., in the prominent, semierect, rather stout frontal spine and the irregularly bifasciate elytra. A closely allied form (included by Uhler under *T. sacchari*) occurs in the Island of Grenada.

7. **Teleonemia prolixa.** (Tab. III. figg. 9; 9 *a*, profile; 9 *b*, antenna; 10, var. β.)

Laccometopus prolixus, Stål, Rio Jan. Hemipt. i. p. 65 (1860) [1].

Teleonemia prolixa, Stål, Enum. Hemipt. iii. p. 132 [2]; Berg, Hemipt. Argent., Suppl. p. 103 (1884) [3].

Monanthia (*Tropidochila*) *sacchari*, Stål, Stett. ent. Zeit. 1862, p. 325 (nec Enum. Hemipt. iii. p. 132 *) [4].

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, San Juan in Vera Paz, San Isidro (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui, Boquete, Tolé (*Champion*).—SOUTH AMERICA, Rio Janeiro [1] [2], Buenos Ayres [3].

Var. α. Less parallel, grey or brownish, the discoidal and sutural areas of the elytra with longitudinal blackish markings, the triangular pronotal process sometimes pale at the tip; the elytra slightly widening to the middle and constricted beyond, the apex appearing considerably dilated.

Hab. MEXICO [4], Teapa in Tabasco (*H. H. Smith*); GUATEMALA, San Gerónimo, San Isidro (*Champion*); PANAMA, Bugaba, David (*Champion*).

Var. β. Smaller and narrower; varying in colour from fuscous to brownish-ochraceous; the pronotum sometimes with the carinæ and the triangular posterior portion flavous, the discoidal and sutural areas of the elytra streaked with fuscous or black in light-coloured specimens, the legs and the three basal joints of the antennæ sometimes ferruginous or testaceous; the elytra subparallel, or a little widened at the apex; the antennæ a little more slender. (Fig. 10.)

Hab. MEXICO, San Juan Bautista in Tabasco (*Höge*); GUATEMALA, Tamahu in Vera Paz, El Tumbador, Cerro Zunil, Mirandilla, Zapote (*Champion*).

A very variable species. The type, a male, of *T. prolixa*, from Rio Janeiro, is before me, and it is more parallel than most of our specimens, and has the very narrow costal area of the elytra pale from the base to near the apex. In the Central-American

* Stål here gives Cuba and St. Bartholomew only as localities for *T. sacchari*.

examples the elytra are frequently more or less constricted beyond the middle, and the costal area is sometimes blackish or fuscous, with a short space only beyond the middle flavous or hyaline. The insect varies from $3\frac{1}{2}$–5 millim. in length and from 1–$1\frac{2}{3}$ millim. in breadth. *T. prolixa* (? = *elevata*, Fabr.) is very like the *T. sacchari* of Herrich-Schäffer, Fieber, and Stål (? of Fabricius), from the Antilles *, and the locality "Mexico," amongst others quoted by them for the last-mentioned insect, probably refers to the present species; *T. prolixa*, however, has smaller and very much less elongate areolæ in the costal area of the elytra, the areolæ, too, in *T. sacchari* being separated by blackish or fuscous transverse nervures. The var. β may prove to be distinct. We figure a typical example from Bugaba and a macropterous specimen of the var. β from Cerro Zunil.

8. **Teleonemia notata,** n. sp. (Tab. III. figg. 11; 11 *a*, profile; 11 *b*, antenna.)

Moderately elongate, narrow, narrowing a little behind, opaque; ferruginous or brown, darker beneath, the triangular posterior portion of the pronotum, and sometimes the carinæ also, more or less yellowish, the elytra pale brown, streaked with fuscous or black, the markings tending to form a dark patch before the apex, the apical areolæ more or less pale, the narrow costal area flavous to near the tip; the antennæ obscure ferruginous, with the apical joint darker; the legs obscure testaceous or ferruginous, with the tarsi darker; the pronotum and under surface clothed with a mealy pubescence. Head with short frontal spines; antennæ comparatively short, about reaching the base of the elytra, moderately stout, joints 1 and 2 equal, 4 oblong-ovate, not or scarcely longer than 1 and 2 united. Pronotum tricarinate, the median carina subangularly projecting in front, the marginal carinæ rather prominent, the interspaces rugulose and finely punctured, reticulated behind. Elytra moderately long, slightly narrowing behind, feebly constricted beyond the middle, and rounded at the apex; discoidal area with the areolæ rather deeply impressed; subcostal and costal areas exceedingly narrow, uniseriate, the areolæ oblong and very narrow. Rostral groove rather wide and parallel behind the anterior coxæ, becoming still wider on the metasternum, the rostrum extending to the meso-metasternal suture.

Length $3\frac{2}{5}$–4, breadth 1–$1\frac{1}{5}$ millim. (♂ ♀.)

Hab. Mexico (*Mus. Vind. Cæs.*), Cordova (*Sallé*), Atoyac in Vera Cruz (*Schumann, H. H. Smith*), Orizaba (*H. H. Smith & F. D. Godman*); Guatemala, El Tumbador, Tocoy (*Champion*); Panama, Bugaba, Volcan de Chiriqui, and San Miguel in the Pearl Is. (*Champion*).

Numerous examples. Very like *T. prolixa*, var. β, but differing from it in the relatively shorter antennæ, with the apical joint shorter, stouter, and more oval in shape, it being about equal in length to the first and second joints united. We figure an example from Bugaba.

9. **Teleonemia scrupulosa.** (Tab. III. figg. 12; 12 *a*, antenna.)

Teleonemia scrupulosa, Stål, Enum. Hemipt. iii. p. 132 [1].

Hab. Mexico, Tacubaya (*Bilimek, in Mus. Vind. Cæs.*), Amula in Guerrero, Orizaba

* The numerous specimens from Grenada and St. Vincent (now in the British Museum) referred by Prof. Uhler (P. Z. S. 1893, p. 706, and 1894, p. 202) to *T. sacchari* belong to three species: *T. sacchari*, H.-S., *T. scrupulosa*, Stål, and a species closely allied to the insect here described under the name *T. bifasciata*, but differing from it in the shorter and inconspicuous upper frontal spine.

and Atoyac in Vera Cruz, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, San Juan, Tamahu, and San Gerónimo in Vera Paz, Zapote, Capetillo, Dueñas, Aceituno, Guatemala city (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui, San Lorenzo, Peña Blanca (*Champion*). —COLOMBIA, Bogota [1]; BRAZIL, Rio Janeiro [1]; ANTILLES, Grenada and St. Vincent.

This is one of the commonest species of the genus within our limits. It may be known by the very shallowly impressed areolæ of the discoidal area of the elytra, this part being finely pubescent, like the pronotum and under surface. The uniseriate costal area is comparatively wide throughout, the transverse nervures separating the hyaline areolæ being sometimes infuscate. The antennæ (broken off in the type before me) are stout, moderately long, and shortly pilose. The general colour is grey or brownish, with darker markings on the elytra, there being always a pale transverse fascia before the apex. The rostral groove is gradually widened behind the anterior coxæ. The principal characters of *T. scrupulosa*—the shortly pilose antennæ and the finely pubescent discoidal area—were not mentioned by Stål. A specimen from Orizaba is figured.

10. **Teleonemia nigrina,** n. sp. (Tab. III. figg. 13; 13 *a*, antenna; 13 *b*, the body beneath, showing the abdominal tubercles, ♀.)

Moderately elongate, narrow, opaque; body black or piceous, the integument grey or brownish-grey, the elytra mottled with black and with the long narrow areolæ of the costal area hyaline, separated by transverse black nervures, the tip of the pronotal process and a small space near the apex of the elytra, as well as the base of the discoidal area, more or less pale; the antennæ and legs black or fuscous, the tibiæ partly flavous or ferruginous; the body beneath and the pronotum clothed with a close mealy pubescence. Head with a short, stout, rather prominent frontal spine; antennæ very shortly pilose, exceedingly stout, short, about reaching the base of the elytra, joints 1 and 2 equal, 3 not twice the length of 4, the latter ovate and of the length of 1 and 2 united. Pronotum subtruncate in front, rather sharply tricarinate, the outer carinæ slightly sinuous, each, the marginal ones included, with a row of small areolæ, the interspaces rugulose and finely punctured, the posterior portion reticulated. Elytra moderately long, slightly narrowed and constricted beyond the middle, with the apices bluntly rounded; discoidal area with deep punctiform areolæ; subcostal area narrow, biseriate; costal area narrow, uniseriate, the areolæ long and separated by stout transverse nervures. Intercoxal portion of the metasternum very broad, the rostral groove being abruptly and greatly widened behind, the rostrum extending to the meso-metasternal suture. Terminal ventral segment in the female with a long, stout, obliquely projecting tubercle on each side. Length $3\frac{1}{2}$, breadth $1\frac{1}{10}$ millim. (♂ ♀.)

Hab. NORTH AMERICA, Texas (*Belfrage, in Mus. Brit.*).—MEXICO, Xucumanatlan in Guerrero (*H. H. Smith*); GUATEMALA, Dueñas and Guatemala city (*Champion*).

Two females and three males have been obtained within our limits. The single specimen from Texas in the British Museum is labelled with the MS. name *Monanthia nigrina*, Uhler. The extraordinary ventral armature in the female and the very short stout antennæ distinguish this species at a glance. It resembles *T. scrupulosa* in general appearance. Guatemalan specimens are figured.

11. **Teleonemia cylindricornis,** n. sp. (Tab. III. figg. 14; 14 *a*, profile.)

Elongate, opaque; testaceous or brownish-ochraceous, the antennæ and the body beneath fuscous or fusco-ferruginous, the elytra sometimes slightly mottled with fuscous, or with some of the transverse nervures

in the costal area infuscate, the areolæ of the latter hyaline, the tarsi usually fuscous at the tip. Head with slender, porrect, frontal spines; antennæ very shortly pilose, reaching to the basal third of the elytra, stout, extremely shortly pilose, joint 2 slightly shorter than 1, 3 nearly four times as long as 4, 4 longer than 1 and 2 united. Pronotum tricarinate, the median carina raised and projecting in front, the marginal carinæ prominent, the interspaces coarsely, closely punctate, reticulate behind. Elytra long, somewhat oval in shape, rounded at the tip, the costal margin slightly sinuate at about one-third from the apex; discoidal area widely reticulated, the nervures surrounding it prominent, the outer one curved behind; subcostal area rather broad, biseriate; costal area prominent to the base, uniseriate to beyond the middle, biseriate towards the apex, the areolæ rather large. Rostral groove subparallel, the rostrum extending to a little beyond the metasternum.

Length 4–4½, breadth 1½–1⅘ millim. (♂ ♀.)

Hab. British Honduras, R. Hondo (*Blancaneaux*); Guatemala, Chiacam, San Juan, and San Gerónimo in Vera Paz (*Champion*).

Eight examples. Differs from *Teleonemia* proper in having two rows of areolæ in the costal area of the elytra towards the apex. The antennæ are formed very much as in *T. validicornis* and *T. forticornis*. A specimen from San Gerónimo is figured.

12. **Teleonemia variegata,** n. sp. (Tab. III. figg. 15; 15 *a*, profile.)

Elongate, opaque; brownish-testaceous or testaceous, fuscous beneath, the elytra mottled with blackish or fuscous, and with some of the transverse nervures in the costal area black, the areolæ of the latter hyaline, the apical joint of the antennæ partly or entirely fuscous, the tarsi black, the femora and tibiæ sometimes slightly annulated with fuscous. Head with slender porrect frontal spines; antennæ long, moderately stout, very slightly pilose, joint 2 slightly shorter than 1, 3 three or three and one-half times longer than 4, 4 a little longer than 1 and 2 united. Pronotum truncate in front, tricarinate, the median carina not raised anteriorly, the marginal carinæ moderately prominent, the interspaces coarsely, closely punctate, reticulate behind. Elytra long, somewhat oval in shape, constricted at about one-third from the apex, the apices rounded; discoidal area widely reticulated; the areolæ not very deeply impressed, the nervures surrounding it prominent, the outer one curved behind; subcostal area biseriate; costal area prominent to the base, uniseriate to beyond the middle, irregularly biseriate for a short distance towards the apex, the areolæ rather large. Rostral groove gradually widening, the rostrum extending to the second ventral suture.

Length 4⅕–4½, breadth 1½–1⅞ millim.

Hab. Mexico, Omilteme in Guerrero 8000 feet (*H. H. Smith*); Guatemala, Capetillo 4000 feet (*Champion*).

Two specimens from each locality. Near *T. cylindricornis*, but with the antennæ shorter and not so stout, the median carina of the pronotum neither raised nor projecting in front, the rostrum longer, the costal area of the elytra with only a few additional areolæ near the sinus, &c. A Mexican example is figured.

13. **Teleonemia picta,** n. sp. (Tab. III. figg. 16; 16 *a*, profile.)

Elongate, opaque; testaceous or ochraceous, the disc of the pronotum, the carinæ excepted, the inner part of the discoidal area, a transverse ante-median fascia between it and the costal margin, widening inwards, the nervures at the costal sinus, and a large apical patch, extending obliquely forwards to the base of the sutural area, more or less fuscous; the body beneath piceous; the antennæ fuscous or fusco-ferruginous, the apical joint black; the legs ferruginous or obscure ferruginous, with the tarsi blackish. Head with a rather long decumbent frontal spine, the two short ones below it approximating at the tip; antennæ moderately stout, about as long as the elytra, joint 2 slightly shorter than 1, 3 three times as long as 4, 4 longer than 1 and 2 united. Pronotum sharply tricarinate, the outer carinæ

converging anteriorly, and with a prominent, oval, angularly projecting hood in front, the marginal carinæ also prominent, each of the carinæ with a row of small areolæ, the interspaces coarsely, closely punctate, reticulate behind. Elytra long, somewhat oval in shape, slightly constricted at about one-third from the apex, the apices rounded; costal and median nervures very prominent, the latter almost straight; discoidal area rather closely reticulated, the oblique nervure closing it behind very faint; subcostal area triseriate in the widest part; costal area anteriorly as wide as the subcostal area, irregularly biseriate, usually triseriate towards the apex, the areolæ in great part hyaline. Rostral groove parallel, the rostrum extending to the first ventral suture.

Length $4\frac{1}{4}$–$4\frac{1}{2}$, breadth $1\frac{1}{2}$–$1\frac{2}{3}$ millim. (♂ ♀.)

Hab. Panama, Caldera and Bugaba in Chiriqui (*Champion*).

Found in abundance on bushes on the savanas of the "tierra caliente." This species approaches *T. cylindricornis* and *T. variegata*; but it has an additional row of areolæ on the costal area of the elytra, the median nervure very prominent and almost straight, the oblique nervure closing the discoidal area behind very faint, the pronotum with a prominent hood, &c.

14. **Teleonemia albomarginata,** n. sp. (Tab. III. figg. 18; 18 *a*, profile.)

Elongate, widening behind, opaque; black or fuscous, the pronotum with the hood and the membranous anterior margin, the marginal carinæ from the middle forwards, and the median carina from the middle downwards, pale flavous, the elytra fuscous, with the costal area to near the apex yellowish-white and hyaline, the median nervure and the apex blackish in one specimen, the spines on the head testaceous, the antennæ and legs black. Head with a moderately long frontal spine and two others below it, the latter approximating at the tip; antennæ elongate, moderately stout, joint 2 slightly shorter than 1, 3 three times as long as 4, 4 twice as long as 1 and 2 united. Pronotum narrowing from the base, dilated behind, with a small, subglobose, angularly projecting hood in front; sharply tricarinate, the median carina abruptly raised anteriorly, the marginal carinæ also greatly raised, each with two rows of small areolæ, the interspaces coarsely, closely punctate, reticulated behind. Elytra elongate, gradually widening from the base, the costal margin slightly hollowed beyond the middle, the apices subtruncate with the angles rounded; discoidal and sutural areas rather widely reticulated, the discoidal area entirely open behind, the usual oblique nervure quite obsolete; costal and median nervures very prominent, the latter almost straight; subcostal area broad, rounded externally, closely reticulated, there being four or five rows of small areolæ in the widest part; costal area moderately broad, closely reticulated, with three rows of small areolæ from the base to the middle, increasing to four or five beyond. Rostral groove gradually widening behind, the rostrum about reaching the end of the metasternum.

Length $5\frac{2}{3}$–6, breadth 2–$2\frac{1}{2}$ millim.

Hab. Panama, Bugaba (*Champion*).—Amazons (*Bates, in Mus. Oxon.*).

One specimen from each locality. Very like *Tingis triangularis*, Blanch.=*Americia albilatera*, Stål*, from Chiquitos and Rio Janeiro, Stål's type of which is before me; but differing from it in having the antennæ longer and more slender, the pronotum with a more inflated hood, and the median carina subangularly raised on the disc and infuscate in the centre, the elytra less truncate at the apex, with the discoidal area open behind and the membranous costal area much narrower, the latter more closely reticulated, the areolæ being quite small.

* Stål does not appear to have seen the figure of *Tingis triangularis*, Blanch., as his type of *T.* (*Americia*) *albilatera* agrees perfectly with it. The same remark applies to *Tingis circumdata*, Blanch., which = *Eurypharsa nobilis* (Guér.).

EURYPHARSA.

Eurypharsa, Stål, Enum. Hemipt. iii. pp. 122, 133 (1873).

1. **Eurypharsa fenestrata,** n. sp. (Tab. III. figg. 17 : 17 *a*, profile.)

Brown, the membranous margins of the pronotum yellowish. Head with a slender frontal spine; antennæ very shortly pilose, rather stout, moderately long, joints 1 and 2 equal, 3 nearly four times as long as 4, 4 slightly longer than 1 and 2 united. Pronotum narrowing almost from the base, tricarinate, the carinæ abbreviated in front and meeting the small, compressed, acutely projecting hood; the membranous margins moderately wide, raised, of uniform width, rounded behind and subangularly projecting in front, irregularly biseriate; the disc slightly shining, and very coarsely, closely punctate, reticulate behind; the posterior portion obtuse at the tip. Elytra nearly three times the width of the pronotum, truncate at the apex, the costa concave from about the basal third to near the tip, the latter rounded; discoidal area closely reticulated; subcostal area very narrow, biseriate; costal area extremely broad, very unequally reticulated, with a number of the areolæ near the base and a cluster of much larger areolæ on the inner part a little beyond the middle, as well as several along the costal margin and the whole of those along the apical margin, hyaline, the inner ones forming two large hyaline patches on each elytron.

Length $5\frac{1}{2}$, breadth of the pronotum $1\frac{1}{2}$, of the elytra $4\frac{1}{3}$ millim.

Hab. Panama, Bugaba (*Champion*).

One specimen only of this extraordinary insect was obtained.

It differs from the South-American *E. nobilis* (Guér.) (=*circumdata*, Blanch.), the type of the genus, in having the costal margin of the elytra concave from about the basal third (instead of rounded), and the costal area very unequally reticulated, the hyaline areolæ on the inner part forming two well-defined patches.

ATHEAS.

Rostrum short, not extending beyond the anterior coxæ. Rostral groove uninterrupted, closed in front; the intercoxal portion of the metasternum cordate, the mesosternal laminæ parallel or converging at the middle. Antennæ slender, the two basal joints stouter, the first joint much longer than the second. Head short, with more or less acute antenniferous tubercles and an obtuse tubercle in the centre in front, the usual spines obsolete. Pronotum without hood, tricarinate, with expanded, thin, membranous, uniseriate margins, the triangular posterior portion sometimes abbreviated and obtuse at the tip. Elytra extending to far beyond the abdomen, oblong oval or subparallel, rounded at the tip; subcostal and discoidal areas very closely reticulated, the latter extending at least to the middle and rounded within; costal area broad or moderately broad, hyaline, with two or three rows of areolæ. Wings nearly as long as the elytra. Orifice distinct. Legs slender. Form oblong, very depressed.

The three small species referred to this genus are closely allied. The unusually short rostrum, the complete absence of the usual spines on the head, the simply carinate pronotum, and the prominence of the antenniferous tubercles, &c. separate them from *Leptostyla* and *Leptodictya*; and the thin, membranous margins of the pronotum and elytra, the acute antenniferous tubercles, &c., from *Monanthia*. The three species may be separated thus:—

Antenniferous tubercles slender and acute . . . . . *flavipes,* n. sp.
Antenniferous tubercles shorter and stouter.
  Pronotum feebly tricarinate; mesosternal laminæ parallel . . . . . *fuscipes,* n. sp.
  Pronotum sharply tricarinate; mesosternal laminæ converging at the middle . . . . . *nigricornis,* n. sp.

1. **Atheas flavipes,** n. sp. (Tab. III. figg. 19; 19 *a*, part of the body beneath.)

Narrow, black, in fresh specimens covered with a bluish-white waxy secretion; the pronotal carinæ pale, the membranous margins of the pronotum and elytra whitish-hyaline, the elytra with the nervures beyond the discoidal area usually fuscous or brownish; the antennæ black, the third joint sometimes flavous; the legs flavo-testaceous or flavous, the tarsi infuscate at the tip. Head dull, rugulose, the antenniferous tubercles slender, acute, and moderately long; antennæ long and very slender, joint 1 twice as long as 2, 3 nearly twice as long as 4, 4 about twice the length of 1. Pronotum finely tricarinate, closely punctured; the membranous margins rather wide, straight, and converging forwards, rounded behind, with a row of rather large areolæ and a narrow, elongate, hyaline space towards the apex on the inner side; the posterior portion obtuse at the tip. Elytra elongate, subparallel at the middle in some specimens; discoidal area extending to about the middle; subcostal area biseriate; costal and sutural areas (the basal portion of the latter excepted) rather widely and subequally reticulated, the costal area triseriate in the widest part, biseriate in front. Mesosternal laminæ parallel, rather widely separated.

Length $2\frac{1}{5}$–$2\frac{1}{2}$, breadth 1–$1\frac{1}{10}$ millim. (♂ ♀.)

Hab. PANAMA, Bugaba (*Champion*).

Thirteen specimens. Differs from the following species in the longer and more acute antenniferous tubercles, the longer and more slender antennæ, the broader membranous margins of the pronotum, and the wider reticulation of the costal and sutural areas of the elytra. In immature examples the pronotum and elytra are fuscous. The antennæ in eight of the specimens have the third joint flavous.

2. **Atheas fuscipes,** n. sp. (Tab. III. fig. 20.)

Narrow, black, in fresh specimens covered with a bluish-white waxy secretion, the pronotum with the carinæ and the tip of the posterior process usually pale, the membranous margins of the pronotum and elytra whitish-hyaline, the elytra with the nervures of the sutural area and apex black or fuscous; the legs fusco-testaceous with the tarsi black, or black with the knees and the apical halves of the tibiæ testaceous. Head dull, rugulose, the antenniferous tubercles short and pointed; antennæ extending to considerably beyond the base of the elytra, moderately slender, joint 1 nearly twice as long as 2, 3 about twice as long as 4, 4 a little longer than 1 and 2 united. Pronotum feebly tricarinate, the outer carinæ indistinct at the middle, closely punctured; the membranous margins narrow, straight, and converging forwards, rounded behind, with a row of small areolæ. Elytra long, slightly rounded at the sides; discoidal area extending to beyond the middle; subcostal area bi- or triseriate; costal area biseriate, in some specimens (♀) triseriate in the widest part. Mesosternal laminæ parallel.

Length $2\frac{1}{4}$–$2\frac{1}{2}$, breadth $\frac{9}{10}$–1 millim. (♂ ♀.)

Hab. MEXICO, Cordova (*Bilimek, in Mus. Vind. Cæs.*), Teapa in Tabasco (*H. H. Smith*); GUATEMALA, Chiacam and San Gerónimo in Vera Paz, Rio Naranjo (*Champion*).

Fourteen specimens, two only of which are from Mexico. Differs from the following, *A. nigricornis*, in the more feebly carinate pronotum, the slightly longer antennæ, the parallel mesosternal laminæ, and darker legs. The costal area is sometimes triseriate in the widest part in the females. An example from Rio Naranjo is figured.

3. **Atheas nigricornis,** n. sp. (Tab. III. fig. 21.)

Very narrow, black, the pronotal carinæ whitish, the elytra and the triangular posterior portion of the pronotum varying in colour from fuscous to pale testaceous, the membranous margins of the pronotum and elytra whitish-hyaline, the nervures at the apex and in the sutural area brownish or fuscous; the

antennæ black; the legs rufo-testaceous, with the tarsi black. Head dull, rugulose, the antenniferous tubercles short and pointed; antennæ extending to very little beyond the base of the elytra, moderately slender, joint 1 much longer than 2, 3 barely twice the length of 4, 4 a little longer than 1 and 2 united. Pronotum distinctly tricarinate, closely punctured; the membranous margins narrow, straight, and converging forwards, rounded behind, with a row of small areolæ. Elytra long, narrow, very feebly widening to about the basal third; discoidal area extending to beyond the middle; subcostal and costal areas biseriate. Mesosternal laminæ converging at the middle, the rostral groove very narrow at this part.

Length $2\frac{1}{2}$, breadth 1 millim. (♂ ♀.)

Hab. MEXICO, Orizaba (*Bilimek, in Mus. Vind. Cæs.*); GUATEMALA, Cerro Zunil, Panajachel, Zapote, Capetillo, Guatemala city, Aceituno (*Champion*).

Numerous examples from Guatemala, four only from Mexico. A specimen from Cerro Zunil is figured.

ACYSTA, n. gen.

Rostrum extending to the meso-metasternal suture. Rostral groove uninterrupted, closed in front, gradually widening behind the anterior coxæ, the intercoxal portion of the metasternum transverse. Antennæ slender, the two basal joints included, the basal joint about twice as long as the second. Head short, with two short converging spines in front and a decumbent spine on either side. Pronotum without hood, tricarinate, with narrow, thin, membranous margins, sometimes obliterated at the middle, the triangular posterior portion acute at the tip. Elytra at least one and a half times the length of the abdomen, oval, rounded at the tip; subcostal and discoidal areas closely reticulated, about equal in width, the latter short and surrounded by raised nervures, the outer (median) nervure prominent to near the tip; costal area broad, hyaline, with three or four rows of areolæ. Orifice distinct. Wings short. Legs slender.

The two small species from which these characters are taken cannot be satisfactorily included in any of the genera tabulated by Stål. A third species, represented by a single mutilated specimen (without head) from Chacoj in Vera Paz, perhaps belongs here; it differs from the others in having the marginal carinæ of the pronotum still narrower and the costal area biseriate.

1. **Acysta integra,** n. sp. (Tab. III. fig. 22.)

Moderately long, ferruginous, the head and the body beneath black; the pronotum with the margins and about half the triangular posterior portion pale testaceous, the areolæ of the margins hyaline; the elytra with a broad transverse fascia on the costal area before the middle, another near the apex, and the apical half of the discoidal area, more or less fuscous, the rest of the costal area pale testaceous and hyaline, the basal half of the discoidal area also pale, the nervures of the sutural area brownish; the spines on the head and the antennæ flavo-testaceous; the legs testaceous. Antennæ moderately long, joint 3 twice as long as 4. Pronotum short, broad behind, constricted in front; closely punctured and tricarinate, the outer carinæ almost obsolete on the disc; the membranous margins entire, rather narrow, rounded behind, with a single row of areolæ in front, increasing to two rows behind. Elytra oval; discoidal area extending to a little beyond the basal third; costal area rather closely reticulated, with about four rows of areolæ; sutural area more widely reticulated towards the apex.

Length $2\frac{1}{2}$, breadth $1\frac{1}{3}$ millim.

Hab. GUATEMALA, Cerro Zunil 4000 feet (*Champion*).

One specimen.

2. **Acysta interrupta,** n. sp. (Tab. III. fig. 23.)

Moderately long, black; the pronotum with the anterior and the interrupted lateral margins, the median carina in front, and the triangular posterior portion whitish or pale testaceous; the elytra with a transverse fascia below the base, extending to the subcostal and discoidal areas, the apex, and sutural area fuscous, the rest of the costal area pale testaceous or whitish, with the areolæ hyaline, the raised longitudinal nervures testaceous; the spines on the head, the antennæ, and legs flavous. Antennæ moderately long, joint 3 barely twice as long as 4. Pronotum closely punctured and tricarinate, strongly constricted in front, with a small ear-like membranous expansion on each side behind, the anterior portion parallel and with a short narrow membranous margin. Elytra oblong-oval; discoidal area extending to a little beyond the basal third; costal area with three or four rows of areolæ.

Length $2\frac{1}{4}$, breadth $1–1\frac{1}{4}$ millim.

Hab. PANAMA, Bugaba, David (*Champion*).

Two examples. This is the only Central-American Tingitid known as yet with the membranous margins of the pronotum interrupted.

MONANTHIA.

Monanthia, Lepeletier de St.-Fargeau & Serville, Encycl. Méthod. x. p. 653 (1825); Stål, Enum. Hemipt. iii. pp. 122, 133.

1. **Monanthia monotropidia.** (Tab. III. figg. 24; 24 *a*, part of the body beneath; 24 *b*, wing.)

Monanthia (*Physatocheila*) *monotropidia,* Stål, Rio Jan. Hemipt. i. p. 63 (1858) [1]; Enum. Hemipt. iii. p. 133 [2].

Hab. GUATEMALA, Chacoj and San Juan in Vera Paz, Zapote, Pantaleon, San Isidro (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui, David, Taboga I. (*Champion*).—COLOMBIA, Bogota [2]; BRAZIL, Rio Janeiro [1 2].

A common insect from Guatemala southwards, occurring on both the Atlantic and Pacific slopes. Stål's type has been examined. In this, as in the following species, the intercoxal portion of the metasternum is transversely cordate, and the rostral channel rather wide and subparallel on the mesosternum, the rostrum reaching the meso-metasternal suture. The wings are nearly as long as the elytra. The North-American *M. labeculata,* Uhler, is probably an allied form. A specimen of *M. monotropidia* from Chacoj is figured.

2. **Monanthia c-nigrum,** n. sp. (Tab. III. fig. 25.)

Finely pubescent, black, the elytra and the disc of the pronotum obscure ferruginous, the membranous margins of the pronotum ochraceous, the elytra with the posterior portion of the nervure closing the discoidal area black (forming a **C**-shaped mark) and the nervures of the sutural area in great part also black, the areolæ of the costal area hyaline; the antennæ with joint 3 testaceous and the other joints black; the femora and tarsi black, the tibiæ testaceous. Head with three short frontal spines; antennæ rather short, joints 1 and 2 equal, 4 about as long as 1 and 2 united. Pronotum with the opaque membranous margins extending rather broadly inwards, in some specimens occupying about two-fifths of the entire width; the disc closely punctured and tricarinate, the outer carinæ short. Elytra oval; the discoidal and subcostal areas closely punctured, the discoidal area extending to the middle, the nervures

surrounding it very prominent, the outer one abruptly curved behind; the costal area with a single row of large areolæ; the sutural area unequally reticulated.

Length $2\frac{1}{2}$–3, breadth 1–$1\frac{1}{2}$ millim.

Hab. MEXICO, Atoyac (*H. H. Smith*), Orizaba (*Bilimek, in Mus. Vind. Cæs.; H. H. Smith*); GUATEMALA, Zapote (*Champion*); NICARAGUA, Chontales (*Janson*).

Fourteen examples. Very like *M. monotropidia*, but with the membranous margins of the pronotum broader and extending inwards, the median nervure of the elytra more abruptly curved behind and also more prominent, usually with a short branch extending obliquely inwards at the point of curvature. *M. loricata*, Dist., from Entre Rios, is another closely allied species; but it differs from *M. c-nigrum* in having the elytra longer, with the areolæ of the costal area very unequal in size, and the triangular posterior portion of the pronotum and the discoidal area of the elytra rather widely reticulated. One of the specimens from Orizaba is of a pale ochraceous colour, due to immaturity. An example from Atoyac is figured.

An additional species of Tingitidæ has been sent to me for examination from the Vienna Museum since the preceding pages were in type; it is as follows:—

LEPTOSTYLA.

9 (A). **Leptostyla partita,** n. sp. (Tab. III. fig. 26.)

Elongate, narrow, widening behind; body black, the integument whitish and hyaline; the elytra with a small spot on the discoidal area, a curved oblique fascia extending from the inner part of the sutural area to the costal margin near the tip, and the nervures beyond it fuscous, the other nervures pale testaceous; the antennæ testaceous, the basal joint and the apical half of the fourth joint black; the legs testaceous. Head with three slender prominent spines; antennæ elongate, slender, joint 1 about two and a half times as long as 2, 3 about three times the length of 4. Pronotum with moderately wide, raised, membranous margins, gradually converging forwards, with the anterior and hind angles rounded, the areolæ small and in two rows; hood short and small, considerably raised, projecting slightly in front; the outer carinæ feebly, the median carina more strongly, foliaceous, the interspaces closely punctured; the triangular posterior portion membranous and closely reticulated. Elytra twice as long as the abdomen, constricted at the middle and widening beyond, the apices rounded; discoidal area narrow, not reaching the middle, closely reticulated; subcostal area very narrow, biseriate; costal area with two rows of rather large pentagonal areolæ at the middle, diminishing to one at the base and apex; sutural area very unequally reticulated, the areolæ becoming very large at the apex. Rostrum reaching the meso-metasternal suture.

Length $2\frac{3}{5}$, breadth (of the elytra near the tip) 1 millim.

Hab. MEXICO, Pedregal (*Bilimek, in Mus. Vind. Cæs.*).

One example. Closely allied to *L. gracilenta*, from Guatemala, from which it differs in having the elytra much longer and narrower, and more constricted at the middle, with the costal area not so wide and uniseriate only at the base, and the apical joint of the antennæ partly testaceous. From the North-American *L. oblonga* (Say) it may be separated by the narrower and longer elytra, with the areolæ of the costal area much less elongate.

Fam. PHYMATIDÆ.

Herr A. Handlirsch's Monograph of this family is now in the press. He has examined specimens of all the Central-American species represented in our collection, and I have endeavoured to follow him wherever possible, the references to his work being taken from proof-sheets kindly forwarded. Two genera only are certainly represented within our limits, *Phymata* and *Macrocephalus*; a third, *Agreuocoris*, is recorded by Herr Handlirsch as from "Mexico," but, as he says, the insect is probably of eastern origin. One *Phymata* and seven *Macrocephali* are here described as new, the whole of these being unknown to him.

The more important synonymy only of the Central-American species is mentioned below, it being given at length by Herr Handlirsch.

These insects, as noted by Prof. Uhler and other writers regarding *Phymata erosa*, L. (=*fasciata*, Gray), bury themselves in the pollen of various flowers, and are thus easily enabled, by means of their raptorial front legs, to catch the small insects that come within reach, their habits being similar in this respect to those of many Mantidæ. They have been noticed to attack small Hymenoptera, Coleoptera, and Lepidoptera, as well as the larvæ of Tenthredinidæ, Aphides, &c.

PHYMATA.

Phymata, Latreille, Hist. Nat. Crust. et Ins. iii. p. 247 (1802); Laporte, Essai Class. Syst. Hémipt., in Guérin's Mag. Zool. 1832, p. 14; Westwood, Trans. Ent. Soc. Lond. iii. p. 21 (1843); Stål, Enum. Hemipt. v. pp. 131, 132 (1876); Handlirsch, Ann. k. k. naturhist. Hofmus. xii. p. 144 (1898).

Syrtis, Fabricius, Syst. Rhyng. p. 121 (1803) (part.).

Discomerus, Laporte, loc. cit. p. 14.

I follow Herr Handlirsch in placing most of the Central-American *Phymatæ* under one variable, abundant, widely distributed species, *P. erosa* (Linn.) (*fasciata*, Gray). The five other Central-American members of the genus appear to be much less variable; they are all comparatively rare, one only of them, *P. acutangula*, Guér., having been found in any numbers. Our species may be separated thus:—

a. Abdomen angularly or acutely dilated at the sides; head short or moderately long.

a'. Pronotum constricted at the sides between the anterior and posterior lobes, with the lobes also more or less emarginate; legs not annulate . *erosa*, L.

b'. Pronotum strongly, subequally trisinuate at the sides; legs annulate . . *handlirschi*, n. sp.

b. Abdomen strongly and acutely dilated at the sides; lateral angles of the pronotum acute; head long . . . . . *acutangula*, Guér.

c. Abdomen broadly and abruptly dilated at the sides; head moderately long; legs annulate.

c'. Pronotum constricted at the sides between the anterior and posterior lobes; head with a subconical tubercle on each side of the disc.	
a''. Antennæ in the male with joint 4 very much longer than 2 and 3 united	*annulipes*, Stål.
b''. Antennæ in the male with joint 4 about as long as 2 and 3 united . .	*noualhieri*, Handl.
d'. Pronotum not constricted at the sides between the anterior and posterior lobes; head with two subconical tubercles on each side of the disc . .	*albopicta*, Handl.

1. **Phymata erosa.**

Cimex erosus, Linn. Syst. Nat. 10th edit. i. p. 443 (1758) [1].

Acanthia erosa, Fabr. Spec. Ins. ii. p. 337 (1781) [2]; Wolff, Icones Cimic. p. 89, t. 9. fig. 83 [3].

Phymata erosa, Latr. Hist. Nat. Crust. et Ins. xii. p. 245 [4]; Westw. Trans. Ent. Soc. Loud. iii. p. 21, t. 2. figg. 3 *a–d* [5]; Stål, Enum. Hemipt. v. p. 133 [6]; Handl. Ann. k. k. naturhist. Hofmus. xii. p. 159 [7].

Discomerus erosus, Laporte, Essai Class. Syst. Hémipt. in Guérin's Mag. Zool. 1832, pp. 14, 87, t. 51. figg. 4 *a–c* [8].

Herr Hirdlirsch in his Monograph recognizes fifteen forms or subspecies of this abundant and very variable American insect, five only of which are found within our limits, the remainder, with the exception of one North-American form, being from South America or the Antilles. The five inhabiting our region are as follows:—

Var. **fasciata.** (Tab. IV. figg. 1, ♂; 2, ♀.)

Syrtis fasciatus, Gray, in Griffith's Anim. Kingd., Ins. ii. p. 242, t. 93. fig. 3 * [9].

Syrtis erosa, Herr.-Schäff. Wanz. Ins. vii. p. 15, t. 222. fig. 694 (*Septis erosa*) [10].

Phymata erosa, Sanborn, Amer. Nat. i. p. 329, fig. 5 [11].

Phymata erosa, subsp. a, *fasciata*, Handl. Ann. k. k. naturhist. Hofmus. xii. p. 161, t. 5. fig. 8, t. 8. fig. 29 (head), t. 9. figg. 21, 22 (antenna) [12].

Phymata wolffii, Stål, Enum. Hemipt. v. p. 133 [13].

Hab. North America [9 11 13], Canada [12], United States [12]. — Mexico [12 13], Juarez (*Cockerell*), Atoyac (*Schumann*, *H. H. Smith*), Acaguizotla in Guerrero, Mexico city, Orizaba, Teapa (*H. H. Smith*), Temax in N. Yucatan (*Gaumer*); British Honduras, Belize (*Blancaneaux*); Guatemala [12], Lanquin, San Juan, Sabo, and San Gerónimo in Vera Paz, Quezaltenango, Capetillo, Dueñas (*Champion*); Nicaragua, Chontales (*Janson*); Panama, Volcan de Chiriqui (*Champion*).

This is the commonest form of the species in Central America. It has the sides of the posterior lobe of the pronotum strongly foliaceous and raised, and produced into three acute teeth, the intermediate one being the longest and directed forwards; and the pronotal margins more or less granulate. Many of the males from Yucatan and Vera Paz have the entire pronotum nigro-fuscous and the transverse fascia on the abdomen black. The var. *fasciata* has been found in plenty in Yucatan, as well as in Chiriqui and elsewhere. A male from Capetillo and a female from Temax are figured.

* Wrongly numbered at the bottom of the Plate.

Prof. Uhler remarks [Proc. Calif. Acad. Sci. (2) iv. p. 282] that "*P. fasciata* is now distributed over the greater part of North America, and that it has doubtless been distributed by hurricanes and less violent storms of wind from region to region, and through the distribution of garden plants by commerce it has unquestionably been transported to distant localities." Also that "it may be expected to occur wherever roses and herbaceous garden plants are carried from North America."

Var. **granulosa.** (Tab. IV. fig. 3, ♂.)

Phymata erosa, subsp. c, *granulosa,* Handl. Ann. k. k. naturhist. Hofmus. xii. p. 163, t. 8. fig. 11 (pronotum) [14].

Hab. MEXICO, Guanajuato and Cuernavaca (*fide Handlirsch* [14]), Tepic and Atoyac (*Schumann*), Rincon in Guerrero (*H. H. Smith*), Orizaba [14] (*H. H. Smith and F. D. G.*), Jalapa (*Höge*); GUATEMALA, San Gerónimo (*Champion*); COSTA RICA, Caché (*Rogers*).

In this variety the surface is distinctly granulate, and the lateral angles of the pronotum are moderately dilated, the intermediate tooth obtuse or not very prominent. The males usually have the base or sides of the posterior portion of the pronotum, and the transverse fascia on the abdomen, blackish or fuscous. This form appears to be confined to Central America. It has been found in plenty at Orizaba and San Gerónimo. A male from San Gerónimo is figured.

Var. **severini.** (Tab. IV. fig. 4, ♂.)

Phymata erosa, subsp. e, *serverini,* Handl. Ann. k. k. naturhist. Hofmus. xii. p. 164, t. 8. figg. 13 (pronotum), 31 (head) [15].

Hab. MEXICO (*Sallé*), Guanajuato [15] (*Mus. Roy. Belg.*), Chilpancingo and Tierra Colorada in Guerrero, Cuernavaca in Morelos [15] (*H. H. Smith*), Atoyac in Vera Cruz (*Schumann, H. H. Smith*); GUATEMALA [15], Quezaltenango, Las Mercedes, San Isidro, Zapote, Capetillo (*Champion*), Guatemala city (*Salvin*); PANAMA [15], Bugaba, Volcan de Chiriqui (*Champion*).

This is a small form, with the connexivum usually more or less spotted with black or fuscous before and behind the dark transverse fascia, the males being sometimes (the females rarely) very prettily marked. It is perhaps confined to Central America. It has been found not uncommonly at Chilpancingo, Capetillo, and Bugaba. A male from Bugaba is figured.

Var. **parva.** (Tab. IV. fig. 5, ♂.)

Phymata erosa, subsp. f, *parva,* Handl. Ann. k. k. naturhist. Hofmus. xii. p. 165 [16].

Hab. MEXICO, Guanajuato, Morelia, and Orizaba (*fide Handlirsch* [16]), Atoyac in Vera Cruz (*Schumann*), Temax in N. Yucatan (*Gaumer*); BRITISH HONDURAS, Belize (*Blancaneaux*); GUATEMALA [16], Cahabon and Senahu in Vera Paz, Las Mercedes, Cerro

Zunil, San Isidro, Zapote (*Champion*); Costa Rica [16]; Panama, Bugaba, Volcan de Chiriqui [16], Caldera, San Lorenzo, Tolé (*Champion*).—Colombia [16]; Venezuela [16].

This is another small form, some of the males measuring 5 millim. only in length, chiefly differing from the var. *severini* in the shorter head, with obtuse frontal process, and the less acute outer hind angles of the segments 1–3 of the connexivum. The abdomen has the usual transverse dark fascia, and, rarely, in the males, a few spots in addition. The insect is widely distributed in Central and South America. About thirty specimens have been seen, a good many of which are from Chiriqui. A male from Belize is figured.

Var. **carneipes.**

Phymata carneipes, Mayr, Verh. zool.-bot. Ges. Wien, xv. p. 442 (1865) [17].

♀. *Phymata breviceps*, Stål, Enum. Hemipt. v. p. 133 (1876) [18].

Phymata erosa, subsp. h, *carneipes*, Handl. Ann. k. k. naturhist. Hofmus. xii. p. 167, t. 5. fig. 9, t. 8. figg. 15 (pronotum), 30 (head) [19].

Hab. Mexico, Temax in N. Yucatan (*Gaumer* [19]); Panama, Volcan de Chiriqui (*Champion*).—Colombia, Bogota [18 19]; Brazil [17 19].

This form resembles the var. *parva*, but it is larger and usually has the legs more or less suffused with reddish (possibly due to discoloration after death). The Yucatan specimens (♂ ♀), named by Herr Handlirsch, have an additional dark transverse fascia in front of the usual one, and the abdomen more broadly and less angularly dilated than usual. I have seen the types of Mayr and Stål. The locality "Georgia" given by Mayr [17] is stated by Handlirsch [19] to be probably incorrect.

2. **Phymata handlirschi,** n. sp. (Tab. IV. fig. 6, ♀.)

Phymata handlirschi, Champ., Handl. Ann. k. k. naturhist. Hofmus. xii. p. 154, t. 8. figg. 5 (connexivum), 36 (head)[1].

♀. Moderately elongate, rather narrow; ochraceous, mottled with fuscous, the pronotum with a dark transverse fascia before the middle, widening inwards posteriorly, and extending for some distance backwards, the clavus and corium fuscous, with whitish dots, the abdomen with a broad transverse blackish fascia, occupying the fourth segment and the basal half of the fifth, the membrane smoky; the antennæ ochraceous, with the apical joint fuscous; the legs ochraceous, the anterior femora and coxæ partly fuscous, the four hinder femora and tibiæ faintly annulated with fuscous. Head moderately long, the anterior process rather prominent, with the lateral lobes obtuse at the tip; granulate, and with two prominent subangular tubercles on the disc behind the eyes; antennæ rather slender, joint 3 longer than 2, and 4 a little longer than 3. Pronotum strongly, subequally trisinuate at the sides, the anterior angles prominent but obtuse, the four marginal teeth subequal; anterior lobe finely granulated, the posterior lobe coarsely, shallowly, confluently punctured; the dorsal carinæ prominent; the base feebly emarginate in the middle. Scutellum carinate and granulate. Corium and clavus minutely punctured. Connexivum sparsely granulate, almost parallel in front, gradually widening to the subacute apex of the fourth segment, and obliquely narrowing thence to the broadly rounded apex, the outer apical angles of segments 1–3 slightly thickened.

Length $5\frac{3}{4}$; breadth of pronotum 2, of abdomen $3\frac{1}{2}$ millim.

Hab. Panama, Volcan de Chiriqui 3000 feet (*Champion* [1]).

One example. Differs from all the other Central-American species of the genus in the strongly trisinuate sides of the pronotum, the four teeth thus formed being about equally prominent. In the annulate legs it approaches *P. annulipes* and *P. noualhieri*, but differs from both in the much less widened connexivum. The insect is unknown to Herr Handlirsch, after whom I have much pleasure in naming it.

3. **Phymata acutangula.** (Tab. IV. fig. 7, ♀.)

Syrtis (*Phymata*) *acutangula*, Guér. in Ramon de la Sagra's Hist. Nat. fis. polit. y nat. de Cuba, Ins. p. 170 (1856) (nec Stål) [1].

Phymata acutangula, Handl. Ann. k. k. naturhist. Hofmus. xii. p. 175, t. 4. fig. 6, t. 8. figg. 6–9 (pronotum), 32–34 (head) [2].

Phymata longiceps, Stål, Rio Jan. Hemipt. i. p. 59 (1858) [3]; Enum. Hemipt. v. p. 133 [4].

Phymata simulans, Stål, loc. cit. p. 59 [5]; loc. cit. p. 133 [6].

Phymata acuta, Stål, loc. cit. p. 60 [7]; loc. cit. p. 133 [8].

Hab. MEXICO [2], Teapa in Tabasco (*H. H. Smith*); GUATEMALA [2]; PANAMA, Bugaba, Volcan de Chiriqui, Caldera, David (*Champion*). — SOUTH AMERICA, Colombia [2], Venezuela [2], Guiana [2], Bolivia [2], Brazil [2 3–8]; ANTILLES, Cuba [1].

Numerous examples of this species have been found in Chiriqui, two only in Tabasco, these latter having the frontal process more obtuse at the tip. Easily distinguishable from the other Central-American species by the long head, the acute lateral angles of the pronotum, the strongly and acutely dilated abdomen, the fourth segment of which is produced laterally into a long, acute tooth, and comparatively small size. The eighteen specimens obtained show very little variation in colour. I have not seen it from Guatemala. An example from Bugaba is figured.

4. **Phymata annulipes.**

Phymata annulipes, Stål, Stett. ent. Zeit. 1862, p. 439 (♂) [1]; Enum. Hemipt. v. p. 132 [2]; Handl. Ann. k. k. naturhist. Hofmus. xii. p. 151, t. 8. fig. 1, t. 9. fig. 8 (antenna) [3].

Hab. MEXICO (*coll. Signoret* [1 2 3], *in Mus. Vind. Cæs.*: ♂).

Easily distinguishable from the allied forms with the abdomen parallel at the base by the exceedingly elongate apical joint of the antennæ in the male. The head has two prominent conical tubercles on the disc and a bilobed frontal process. The anterior tooth of the lateral angles of the pronotum is subvertical and conical in shape. The connexivum is broadly and abruptly dilated beyond the middle, and obliquely narrowed thence to the apex; the segments 1–3 have each a conspicuous tuberculiform prominence at the outer apical angle (a character not mentioned by Stål), the first segment being also thickened and dilated at the outer anterior angle; the fourth segment is strongly foliaceous, with two prominent teeth, the outer apical angle also being produced into a tooth; the fifth segment is dilated at each outer angle. The

type has been forwarded to me by Herr Handlirsch for examination. The locality "Mexico" seems to require confirmation.

5. **Phymata noualhieri.** (Tab. IV. figg. 8, ♀; 8 *a*, profile of head.)

Phymata noualhieri, Handl. Ann. k. k. naturhist. Hofmus. xii. p. 153, t. 4. fig. 3, t. 8. fig. 4 (connexivum), t. 9. fig. 5 (antenna) [1].

Hab. North America, Pennsylvania [1], Georgia [1].—Mexico, Chilpancingo in Guerrero [1] (*H. H. Smith*: ♂); Guatemala [1], Aceituno (*Champion*: ♂ ♀).

Of this species we possess four specimens from Guatemala and one from Mexico, three of which have been examined by Herr Handlirsch. It is very like *P. annulipes*, but has a much shorter apical joint to the antennæ in the male (as long as 2 and 3 united in the present species, about three and a half times as long as 3, or longer than the three others united, in *P. annulipes*), and the outer apical angles of the first three segments of the connexivum less prominent. The pronotum varies in colour, it being almost entirely black in one of the specimens. The head has a subconical tubercle on each side of the disc and the two lobes of the frontal process are prominent. The legs are annulate. In the female the apical joint of the antennæ is shorter than the two preceding joints united. A female from Aceituno is figured.

6. **Phymata albopicta.** (Tab. IV. figg. 9, ♂; 9 *a*, profile of head.)

Phymata albopicta, Handl. Ann. k. k. naturhist. Hofmus. xii. p. 151, t. 4. fig. 2, t. 8. fig. 37 (head), t. 9. fig. 3 (antenna) [1].

Hab. North America, Georgia [1].—Mexico (*Boucard, in Mus. Oxon.*), Morelia, Guanajuato (*fide Handlirsch* [1]), Chilpancingo in Guerrero [1] (*H. H. Smith*), Orizaba (*H. H. Smith, F. D. G.*); Guatemala, Chiacam and San Gerónimo in Vera Paz, Capetillo (*Champion*), Guatemala city (*Salvin*).

We possess ten examples of this species, and there is also one of it in the Oxford Museum, some of which have been examined by Herr Handlirsch. In this insect the abdomen is broadly and abruptly foliaceous beyond the middle; the pronotum is without the usual median constriction at the sides, the latter being feebly trisinuate, and the anterior and hind angles are acute; the head has a rather long, raised, bifurcate frontal process, and two prominent subconical tubercles on each side of the disc; the apical joint of the antennæ is about as long as the two preceding united in the male, much shorter in the female. The broad transverse dark fascia on the elytra sometimes extends to the apex; the basal half of the corium and the first three segments of the connexivum are spotted with whitish or pale testaceous, and there are two similarly coloured spots on each side of the pronotum anteriorly. A specimen from San Gerónimo is figured.

MACROCEPHALUS.

Macrocephalus, Swederus, Vet.-Ak. nya Handl. viii. p. 183 (1787) *; Westwood, Trans. Ent. Soc. Lond. iii. p. 22 (1841); Stål, Enum. Hemipt. v. pp. 132, 134; Handlirsch, Ann. k. k. naturhist. Hofmus. xii. p 181 (nec Olivier, 1789).

This genus is confined to the warmer parts of America, ranging from the Southern United States to Chili and the Argentine Republic. The species are numerous in Central America, but of several of them very few individuals have been obtained. The females, in most cases, differ from the males in being much paler in colour, and there is sometimes a slight modification in the form of the antennæ and connexivum in this sex. Several species are green in life, this colour changing to ochreous in dried specimens. *Macrocephalus* chiefly differs from *Phymata* in the greatly developed scutellum and the absence of tarsi to the front pair of legs †.

a. Scutellum with a laterally dilated median callus extending from the base downwards, and also with a more or less distinct median carina, the latter sometimes becoming evanescent anteriorly.
  a'. Lateral angles of the pronotum raised, bilobate; scutellar callus sparsely punctured . . . . . *notatus*, Westw.
  b'. Lateral angles of the pronotum not or very little raised, obliquely truncate.
    a''. Scutellar callus long, closely punctured; antennæ (♂) with joint 4 scarcely so long as the others united; upper surface conspicuously granulate . . . . . *aspersus*, n. sp.
    b''. Scutellar callus short, very sparsely punctured; antennæ (♂) with joint 4 longer than the others united; upper surface very sparsely and finely granulate . . . . . *panamensis*, n. sp.
b. Scutellum with a well-defined median carina only.
  c'. Head and anterior half of pronotum simply granulate.
    c''. Antennæ (♂) with joint 4 very elongate, 3 a little longer than 2; body narrow, elongate.
      a'''. Lateral angles of the pronotum obliquely truncate; body (♂) fuscous above, the scutellum with a flavous median vitta, extending on to the pronotum . . . . . *falleni*, Stål.
      b'''. Lateral angles of the pronotum acute; body (♂ ♀) more or less ochraceous or green above, the basal half of the pronotum and a very large patch on the apical part of the scutellum darker . *angustatus*, n. sp.
    d''. Antennæ (♂ ♀) with joint 4 moderately long:
      c'''. Joint 3 nearly twice as long as 2; body (♂) moderately elongate, variegate above, with the connexivum spotted . . . . . *granulatus*, n. sp.

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* The name *Macrocephalus* is also in use in Coleoptera, fam. Anthribidæ, but it has priority in Rhynchota.

† The short retractile anterior tarsi are received into a groove on the lower side of the tibiæ in *Phymata*, and not easily seen.

d'''. Joint 3 not or not much longer than 2.

*a*⁴. Form narrow, elongate; lateral angles of the pronotum emarginate; connexivum (♂) not visible from above . . . . *attenuatus*, n. sp.

*b*⁴. Form comparatively short; lateral angles of the pronotum obliquely truncate or feebly emarginate; connexivum (♂ ♀) broad.

*a*⁵. Lateral angles of the pronotum dilated and reflexed on their anterior edge; pronotum and scutellum finely punctured. *inæqualis*, n. sp.

*b*⁵. Lateral angles of the pronotum simple in front; pronotum and base of scutellum coarsely punctured.

*a*⁶. Anterior lobe of the pronotum coarsely granulate, more or less spiculate at the sides, infuscate in the male, the posterior portion feebly convex or somewhat flattened; scutellum moderately depressed below the base, in the male black, usually with two yellow spots on each side externally . . . . . *ståli*, Handl.

*b*⁶. Anterior lobe of the pronotum more finely granulate.

*a*⁷. Pronotum convex behind, the anterior lobe flavous in the male; scutellum strongly depressed below the base, in the male with the base, a median fascia, and an apical spot more or less fuscous . . . . . *lepidus*, Stål.

*b*⁷. Pronotum flattened behind; scutellum feebly depressed below the base. [The male with the anterior and posterior lobes of the pronotum, the sides excepted, and a broad median vitta on the scutellum, fuscous.] . *prehensilis*, F.

d'. Head and anterior half of the pronotum with setiferous spiculæ, the rest of the surface conspicuously granulate; form short and broad . . . . . *spiculosus*, n. sp.

1. **Macrocephalus notatus.** (Tab. IV. fig. 10, ♂.)

Macrocephalus notatus, Westw. Trans. Ent. Soc. Lond. iii. p. 24 (1841)[1]; Handl. Ann. k. k. naturhist. Hofmus. xii. p. 188, fig. 22 (scutellum), t. 9. figg. 27, 28 (antenna)[2].

Macrocephalus incisus, Stål, Stett. ent. Zeit. 1862, p. 440 (♂)[3]; Enum. Hemipt. v. p. 135[4].

Macrocephalus cliens, Stål, Stett. ent. Zeit. 1862, p. 440 (♂)[5].

Hab. Mexico[2–5], Pinos Altos in Chihuahua (*Buchan-Hepburn*), Teapa in Tabasco (*H. H. Smith*), Tabasco (*Mus. Holm.*[2]), Temax in N. Yucatan (*Gaumer*); British Honduras, Belize (*Blancaneaux*); Guatemala[2], Chiacam, San Juan, Panzos, Chacoj, and La Tinta in Vera Paz, El Reposo, Pantaleon, Mirandilla (*Champion*), Escuintla (*Mus. Vind. Cæs.*); Costa Rica[2]; Panama, Veraguas (*Mus. Berol.*[2]). — Colombia[1 2]; Venezuela[2].

Var. The antero-lateral tooth of the pronotum less prominent; the scutellar callus smaller and shorter, not reaching the middle (Handl. *loc. cit.* fig. 24). (♂ ♀.)

Hab. Guatemala, San Gerónimo (*Champion*); Costa Rica[2].

Var. The connexivum more rounded externally, the segments only very slightly projecting at their outer apical angles; the scutellar callus extending to the middle (Handl. *loc. cit.* p. 23). (♂.)

Hab. COSTA RICA; PANAMA, Taboga I. (*Champion*).

This is the commonest species of the genus in Central America. It is very like *M. cimicoides*, Swed., Westwood's male specimen of which is contained in the Oxford Museum; but differs from it in having a less cylindrical apical joint to the antennæ in the male, and the scutellar callus less pointed laterally. A typical male from Chacoj is figured.

The antero-lateral tooth of the pronotum is usually much longer than the posterior one. The scutellar callus varies in size, it being considerably prolonged posteriorly in many of the males before me. The puncturing of the basal half of the pronotum and of the base of the scutellum is very coarse. The segments of the connexivum are more or less angularly dilated at their outer apical angle. The femora, tibiæ, and scutellar callus are probably green or greenish in life. Herr Handlirsch informs me that he has seen Stål's types, and also that of *M. notatus*, Westw., and that he regards them as varieties of one and the same species, distinct from both *M. manicatus* (F.) and *M. cimicoides*, Swed., of North America.

2. **Macrocephalus aspersus,** n. sp. (Tab. IV. fig. 11, ♂.)

Macrocephalus aspersus, Champ., Handl. Ann. k. k. naturhist. Hofmus. xii. p. 191, t. 9. fig. 29 (antenna) [1].

♂. Moderately elongate, narrow; ochraceous, the head with an olivaceous mark surrounding the ocelli behind, the posterior portion of the pronotum, the corium, and the scutellum, the median callus excepted, pale brownish-olivaceous; the antennæ, the buccal laminæ, the front of the prosternum, and a streak on each side of the median callus of the scutellum in front, fuscous; the legs flavous, the tibiæ and tarsi green; above and beneath thickly studded with small smooth pallid granules, these giving a mottled appearance to the scutellum; the posterior portion of the pronotum and the median callus and base of the scutellum coarsely and closely, the rest of the scutellum and the corium finely, punctate. Antennæ moderately stout, joint 4 nearly as long as the others united, 3 longer than 2. Pronotum with the lateral angles obliquely truncate; the two dorsal carinæ prominent, converging anteriorly, and reaching the anterior lobe. Scutellum gradually narrowing from the middle forwards, with a large lanciform median callus extending to far beyond the middle, and also with a smooth median carina. Abdomen oval, the connexivum moderately wide, the fifth segment only subangularly projecting laterally at the outer apical angles.

Length 8, breadth 3 millim.

Hab. NICARAGUA, Chontales (*Janson* [1]).

Differs from *M. notatus* (♂) in the more slender antennæ, with much longer apical joint, the obtuse, unraised lateral angles of the pronotum, the closely punctured scutellar callus, the rounded sides of the connexivum, and the more coarsely and closely granulate surface. The insect is more elongate and less attenuate than the male of *M. panamensis*, and has the scutellar callus very differently shaped, the granulation much closer, &c. This species is unknown to Herr Handlirsch, who informs me that it is certainly undescribed.

3. **Macrocephalus panamensis,** n. sp. (Tab. IV. figg. 12, ♂; 13, ♀.)

Macrocephalus panamensis, Champ., Handl. Ann. k. k. naturhist. Hofmus. xii. p. 200, fig. 25 (scutellum), t. 9. fig. 40 (antenna) [1].

♂. Moderately elongate, attenuate behind; head black, with an ochraceous stripe on each side behind the eyes; pronotum brownish-black, rather broadly bordered with ochraceous at the sides from the lateral angles to the apex; corium and scutellum black, the latter with the median callus, a narrow curved fascia a little before the apex, and the apex of the median carina, flavous; the connexivum ochraceous, with a transverse black fascia before the middle; the antennæ black, the second and third joints, and the base and apex of the fourth, obscure ferruginous; the body beneath ochraceous; the anterior femora and tibiæ nigro-fuscous, the intermediate and hind legs fusco-testaceous; above and beneath, the basal joints of the antennæ, the coxæ and femora, and the two hinder tibiæ, sparsely studded with smooth minute granules; the basal half of the pronotum and the basal third of the scutellum closely and somewhat coarsely, the corium and the rest of the scutellum more finely, punctured, the median callus with a few coarse scattered punctures only. Antennæ moderately stout, joint 4 a little longer than the others united, 3 longer than 2. Pronotum with the lateral angles obliquely truncate; the two dorsal carinæ converging anteriorly and reaching the anterior lobe. Scutellum slightly narrowing from the middle forwards, and also narrowing behind, with a raised subpiriform median callus and a smooth median carina, the callus extending to a little beyond the basal third and pointed behind. Abdomen oval, the connexivum rather narrow and rounded externally.

Length $6\frac{4}{5}$, breadth $2\frac{1}{2}$ millim.

♀. Broader, less attenuate behind; ochraceous, the head and the basal half of the pronotum mottled with fuscous; the scutellum fuscous or brownish, with a faint curved fascia towards the apex, an indistinct apical spot, the median callus, and the granules, flavous; the legs slightly suffused with green; the apical joint of the antennæ shorter and more pointed, scarcely as long as joints 1–3 united; the abdomen cordate, with the connexivum much broader; the lateral angles of the pronotum obliquely truncate or very feebly emarginate at the tip.

Length 8, breadth $3\frac{1}{2}$–$3\frac{3}{4}$ millim.

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion* [1]).

One male and two females. Differs from *M. notatus* in all its varieties in the truncate or very feebly emarginate lateral angles of the pronotum, the much finer puncturing of the basal half of the latter, the larger apical joint of the antennæ, the relatively shorter median callus of the scutellum, and the rounded sides of the connexivum.

From the allied *M. leucographus,* Westw., from Haiti, and from *M. westwoodi,* Guér., from Cuba, it may be known by the pale scutellar callus, and from *M. westwoodi,* in addition, by the lateral angles of the pronotum not being raised (*fide* Handlirsch).

4. **Macrocephalus falleni.** (Tab. IV. fig. 14, ♂.)

Macrocephalus falleni, Stål, Stett. ent. Zeit. 1862, p. 441 (♂) [1]; Enum. Hemipt. v. p. 135 [2]; Handl. Ann. k. k. naturhist. Hofmus. xii. p. 206, t. 7. fig. 8, t. 9. fig. 43 (antenna) [3].

♂. Moderately elongate; head black, ochraceous at the sides, the eyes and ocelli ochraceous; pronotum, scutellum, and corium nigro-fuscous, the pronotum with the margins (except at the apex of the lateral angles) and a narrow median vitta on the posterior portion, and the scutellum with a rather broad median vitta (including the median carina), ochraceous; the body beneath, connexivum, and legs ochraceous; the antennæ fusco-ferruginous, the apical joint in great part fuscous; above and beneath, the basal joints of the antennæ, the coxæ and femora, and the two hinder tibiæ, studded with small smooth granules, these being very minute and widely scattered on the pronotum, scutellum, and corium; the posterior portion of the pronotum, scutellum, and corium rather closely punctured. Antennæ moderately stout, joint 4 about twice as long as 2 and 3 united, 3 longer than 2. Pronotum with the lateral angles obliquely truncate; the two dorsal carinæ short and not very distinct, converging in front, and reaching

the anterior lobe. Scutellum gradually narrowing from the middle forwards, with a moderately prominent smooth median carina. Abdomen oval, very little wider than the pronotum, the connexivum rather narrow, the segments not projecting at their outer apical angles.

Length $8\frac{4}{5}$, breadth 3 millim.

Hab. MEXICO (*coll. Signoret* [1 2 3], *in Mus. Vind. Cæs.*); PANAMA, Boquete in Chiriqui 3500 feet (*Champion*).

One example, only differing from the type (*fide* Handlirsch) in being a little darker. The description given will supplement that of Stål.

5. **Macrocephalus angustatus,** n. sp. (Tab. IV. figg. 15, ♂; 16, ♀.)

Macrocephalus angustatus, Champ., Handl. Ann. k. k. naturhist. Hofmus. xii. p. 204, t. 9. fig. 45 (antenna) [1].

♂. Very elongate, narrow; ochraceous, the head with a blackish mark between the ocelli, the pronotum with the posterior portion suffused with rufo-fuscous, the lateral angles fuscous, the scutellum with the apical half mottled with brown, with indications of a darker median fascia; the legs and corium suffused with green; the antennæ rufo-ferruginous, the apical half of the fourth joint blackish; above (the basal half of the scutellum excepted) and beneath, the basal joints of the antennæ, the coxæ and femora, and the two hinder tibiæ, studded with small smooth granules; the posterior portion of the pronotum and the basal half of the scutellum coarsely, the rest of the scutellum finely and closely, punctured. Antennæ moderately stout, joint 4 distinctly longer than 1–3 united, 2 and 3 subequal in length. Pronotum with the lateral angles convex and acute, these being emarginate behind; the two dorsal carinæ moderately prominent, converging anteriorly, and reaching the long anterior lobe; the posterior portion canaliculate in the middle in front. Scutellum gradually narrowing from about the middle forwards, with a smooth prominent median carina. Abdomen subparallel, the very narrow connexivum scarcely visible from above, the fifth segment angularly dilated at the outer apical angles.

Length $9\frac{3}{4}$; breadth $2\frac{1}{10}$, of the pronotum $3\frac{1}{10}$ millim.

♀. Broader, the pronotum paler on the disc; the scutellum shorter, suffused with green at the sides, and with the dark apical patch not reaching the middle; the abdomen elongate-oval, the connexivum as wide as the corium and visible from above almost to the apex, the fifth and sixth segments angularly dilated at their outer apical angles.

Length $10\frac{3}{4}$, breadth 3, of the pronotum $3\frac{1}{3}$ millim.

Hab. NICARAGUA, Chontales (*Janson* [1]: ♀); PANAMA, Volcan de Chiriqui (*Champion* [1]: ♂).

One example from each locality. The ochraceous portions of the scutellum and corium, as well as the legs, are probably green in life. The insect is closely allied to *M. macilentus*, Westw., from Colombia, from which it differs (*fide* Handlirsch) in having the antennæ much longer.

6. **Macrocephalus granulatus,** n. sp. (Tab. IV. figg. 17, ♂; 18, ♀.)

Macrocephalus granulatus, Champ., Handl. Ann. k. k. naturhist. Hofmus. xii. p. 205, t. 9. fig. 47 (antenna) [1].

♂. Moderately elongate; above black, fuscous, or brownish, the head with a marginal stripe behind the eyes, the pronotum with the margins (except at the apex of the lateral angles), the dorsal carinæ in front, and a median vitta on the posterior portion, the scutellum with a narrow elongate-triangular mark below the base, the sides in front, and the median carina for some distance before and beyond the middle, as well as most of the granules, and the anterior half or more of each of the segments of the connexivum, flavous or ochraceous; the antennæ blackish or fuscous, the three basal joints beneath, and the base and apex of the fourth joint, more or less ochraceous; the body beneath and the legs flavous or ochraceous, the anterior

femora usually blackish or fuscous, the sides of the ventral segments sometimes stained with fuscous; above and beneath, the basal joints of the antennæ, the coxæ and femora, and the two hinder tibiæ, studded with small smooth granules, these (owing to their pale colour) forming variegate markings on the scutellum; the posterior portion of the pronotum, the scutellum, and corium rather closely punctured, the punctures on the pronotum and on the base of the scutellum moderately coarse, the others fine. Antennæ moderately stout, joint 4 about as long as 2 and 3 united, 3 nearly twice as long as 2. Pronotum feebly convex behind, slightly depressed along the middle, the lateral angles obliquely truncate; the two dorsal carinæ reaching the anterior lobe, converging anteriorly, and evanescent behind. Scutellum constricted below the base, with a smooth prominent median carina. Corium with the median nervure extending obliquely inwards. Abdomen oval, the connexivum moderately wide, the apex of each of the segments slightly projecting laterally, that of the first and fifth subangularly dilated.

♀. Broader; above pale brown, the basal joints of the antennæ and the head (except at the sides behind) fuscous, the pronotum, scutellum, and corium also mottled with darker brown; the connexivum much more broadly dilated at the sides, the first and sixth segments subangularly dilated laterally at the apex; the apical joint of the antennæ a little shorter, more ovate in shape, and more pointed at the tip.

Length $8\frac{1}{2}$–$9\frac{4}{5}$, breadth ♂ 3–$3\frac{1}{4}$, ♀ 4 millim.

Hab. GUATEMALA, Purula, Sabo, and Sinanja in Vera Paz (*Champion* [1]).

Var. Above and beneath very sparsely, minutely granulate, the scutellum closely, finely, uniformly punctate, the connexivum more evenly rounded at the sides, the first and sixth segments not subangularly dilated at the outer apical angle. (♀.)

Hab. MEXICO, Omilteme in Guerrero (*H. H. Smith* [1]).

Six males and one female of the typical form have been obtained. The variety is represented by an imperfect female example. The male of *M. granulatus* may easily be known by its variegate colour, the segments of the connexivum being spotted and the pale granules on the scutellum forming definite markings. The female, as in *M. lepidus* and others, is much paler and more uniformly coloured. The long third joint of the antennæ is a conspicuous character in the present species. The insect is unknown to Herr Handlirsch.

7. **Macrocephalus attenuatus,** n. sp. (Tab. IV. fig. 19, ♂.)

Macrocephalus attenuatus, Champ., Handl. Ann. k. k. naturhist. Hofmus. xii. p. 204, t. 9. fig. 46 (antenna) [1].

♂. Very elongate, narrow, narrowing posteriorly; fuscous, the pronotum mottled with lighter brown; the scutellum and corium blackish, fuscous at the base, the scutellum with an apical spot and a transverse patch in front of it sordid yellow, and also slightly mottled with the same colour; the antennæ rufo-fuscous, with the apical joint black; the legs, including the coxæ, the sterna, and a broad space down the middle of the abdomen beneath, flavous, the tibiæ and tarsi suffused with green; the exposed portion of the connexivum ochraceous; the upper surface, the basal joints of the antennæ, the coxæ and femora, and the two hinder tibiæ, studded with small smooth scattered granules; the posterior portion of the pronotum and the basal half of the scutellum sparsely and coarsely, the rest of the scutellum closely and finely, punctate. Antennæ stout, joint 4 ovate, nearly as long as 1–3 united, 2 and 3 subequal. Pronotum with the lateral angles convex and excised, the anterior tooth rather sharp and prominent, the posterior one obtuse; the two dorsal carinæ short, slightly converging in front, and reaching the long anterior lobe. Scutellum gradually narrowing from the middle forward, with a smooth median carina, which becomes less distinct towards the base. Abdomen gradually narrowing from the base, the connexivum scarcely visible from above; the ventral segments with a broad, smooth, shining space down the middle, the sides closely granulated.

Length $9\frac{3}{4}$; breadth $2\frac{1}{3}$, of the pronotum 3 millim.

Hab. PANAMA, Volcan de Chiriqui 3000 feet (*Champion* [1]).

One example. Easily separable from *M. angustatus*, ♂, by the shorter and stouter apical joint of the antennæ, and the broad, excised lateral angles of the pronotum. Very similar to *M. macilentus*, Westw., but differing from it in the emarginate and more convex lateral angles of the pronotum (*fide* Handlirsch).

8. **Macrocephalus inæqualis,** n. sp. (Tab. IV. fig. 20, ♀.)

Macrocephalus inæqualis, Champ., Handl. Ann. k. k. naturhist. Hofmus. xii. p. 197, t. 9. fig. 35 (antenna)[1].

♀. Comparatively short, broad; obscure rufo-testaceous, the lateral angles of the pronotum paler, the scutellum with a large patch on each side at the base ochraceous and the median carina flavous in front; the connexivum rufo-fuscous, each of the segments bordered with black externally at the middle, and with the outer anterior and posterior angles testaceous; the antennæ fusco-ferruginous; the legs fusco-testaceous, the femora reddish; the body beneath rufo-testaceous; above and beneath, the basal joints of the antennæ, the coxæ and femora, and the two hinder tibiæ, studded with smooth granules, those on the pronotum, scutellum, and connexivum very minute and widely scattered; the posterior half of the pronotum and the basal portion of the scutellum somewhat coarsely, and the rest of the scutellum closely and finely, punctured. Antennæ short and stout, joint 4 ovate, as long as 2 and 3 united, the latter subequal. Pronotum rather broadly dilated at the sides, the lateral angles slightly excised (forming two very short obtuse teeth) and with their anterior margin feebly dilated and reflexed at the middle; the two dorsal carinæ short, very little raised, slightly converging in front, and reaching the anterior lobe. Scutellum narrowing from the middle forwards, with a smooth sharp median carina, which is thickened at the base. Abdomen broad-oval, the connexivum wide and rounded externally.

Length $6\frac{1}{5}$, breadth 3 millim.

Hab. Mexico, Omilteme in Guerrero 8000 feet (*H. H. Smith*[1]).

One example, evidently discoloured. Very like *M. ståli*, Handl.; but differing from the female of that species in the much more finely punctured pronotum and scutellum, as well as in the shape of the lateral angles of the pronotum, these having their oblique anterior margin slightly dilated and reflexed at the middle. In certain lights the ochraceous patch at the base of the scutellum appears to be limited posteriorly by an oblique darker stripe. The insect is unknown to Herr Handlirsch.

9. **Macrocephalus ståli.** (Tab. IV. figg. 21, ♂; 22, ♀.)

Macrocephalus lepidus, Stål, Stett. ent. Zeit. 1862, p. 440[1]; Enum. Hemipt. v. p. 135[2] (part.).
Macrocephalus ståli, Handl. Ann. k. k. naturhist. Hofmus. xii. p. 195[3].

Hab. Mexico (*Sallé and Boucard, in Mus. Holm.*[1 2]; *Boucard in Mus. Oxon.*: ♂), Chilpancingo in Guerrero[3] (*H. H. Smith*[3]: ♂ ♀).

Var. Pronotum more depressed behind, the anterior lobe more feebly spiculate at the sides; scutellum in the male sometimes entirely black, the short streak on the median carina at the base excepted. (♂ ♀.)

Hab. Mexico, Guanajuato[3] (*Dugès, in Mus. Roy. Belg.*).

Two species were confused by Stål under the name *M. lepidus*, the name *M. ståli* being applied to one of them by Handlirsch. Of the latter we have received numerous examples of both sexes from Guerrero, the males agreeing perfectly with the types of *M. lepidus* in the Stockholm Museum, communicated by Dr. Aurivillius. Those in the Signoret collection, communicated by Herr Handlirsch, agree best with his

description. Of the variety I have seen three males and two females. In the typical form of *M. ståli* the anterior lobe of the pronotum is coarsely granulate, the granules at the sides being pointed in both sexes (a character not mentioned by Stål), and the teeth on the underside of the head, as well as those on the front of the prosternum and on the front coxæ, are sharp; the scutellum in the male (the base of the median carina excepted) is black or blackish, with two subtriangular yellow spots on each side externally, and the anterior lobe of the pronotum (as in *M. prehensilis*) is more or less blackish or fuscous in this sex. A male and female from Chilpancingo are figured.

10. **Macrocephalus lepidus.** (Tab. IV. figg. 23, 23 *a*, ♂.)

Macrocephalus lepidus, Stål, Stett. ent. Zeit. 1862, p. 440 (part.)[1]; Handl. Ann. k. k. naturhist. Hofmus. xii. p. 196, t. 8. fig. 5, t. 9. figg. 33, 34 (antenna)[2].

♂. Comparatively short, flavous, ochraceous, or greenish-yellow; the head, the basal half of the pronotum (the hind margin outside the scutellum excepted), the base of the corium, a transverse median fascia on the scutellum—widening inwards and connected on each side of the median carina with a basal patch, and extending laterally to the outer margin of the connexivum,—and a rather large spot at the apex, blackish or fuscous in dark specimens, dilute fuscous or brownish-ochraceous in light-coloured ones; the antennæ in dark specimens ferruginous, with joints 1 and 2 above and the others partly black; the inner (covered) portion of the corium carmine; the head, the basal joints of the antennæ, the anterior half of the pronotum, the coxæ, femora, and under surface set with small smooth granules, those on the head and antennæ sometimes black; the basal half of the pronotum and the base of the scutellum coarsely, the rest of the scutellum finely and closely, punctate, the base of the pronotum, the connexivum, and scutellum sparsely and very finely granulate, the scutellum with irregular, scattered, shallow depressions, appearing mottled. Antennæ short and stout, joint 4 ovate, a little longer than 2 and 3 united, 3 longer than 2. Pronotum with the basal half transversely convex, the lateral angles broad and somewhat raised, more or less emarginate at the apex; the two dorsal carinæ prominent, converging anteriorly, and reaching the anterior lobe. Scutellum transversely depressed in front, and with a smooth sharp median carina, which is thickened and prominent at the base. Abdomen cordate, the connexivum wide, the first segment subangularly dilated laterally at the apex.

♀. Broader and larger, with the darker markings paler and less distinct, the head and antennæ entirely pale.

Length $5\frac{2}{5}$–$5\frac{3}{5}$, breadth $2\frac{1}{2}$–$2\frac{7}{8}$ millim.

Hab. MEXICO (*coll. Signoret*[1 2], *in Mus. Vind. Cæs.*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*: ♂ ♀), Teapa in Tabasco (*H. H. Smith*: ♂); GUATEMALA[2], Chiacam and Cahabon in Vera Paz (*Champion*: ♂ ♀).

We have received twenty-one specimens of this species, and there are six others in the Vienna Museum, all apparently from the Atlantic slope. Closely allied to *M. ståli*, Handl., from the central plateau and Pacific slope of Mexico, but differing from it in having the pronotum more finely granulate in front, with the posterior portion more convex and the dorsal carinæ more prominent, and the scutellum more depressed below the base; the males, too, are dissimilar in colour, those of the present species having the anterior lobe of the pronotum pale and the scutellum less marked with black or fuscous, the median fascia being here separated from the apical spot, this being the case in the female also. The yellow streak on the base of the scutellar carina is usually dilated laterally, forming a narrow diagonal mark. Two species having been confused

by Stål under the name *M. lepidus*, a fresh description is given from our extensive series of specimens. A male from Teapa is figured.

11. **Macrocephalus prehensilis.**

Syrtis prehensilis, Fabr. Syst. Rhyng. p. 123[1].

Macrocephalus prehensilis, Westw. Trans. Ent. Soc. Lond. iii. p. 26[2]; Amyot et Serv. Hist. Nat. Ins. Hémipt. p. 293[3]; Herr.-Schäff. Wanz. Ins. viii. p. 108, t. 285. fig. 879[4]; Stål, Hemipt. Fabr. i. p. 94[5]; Enum. Ins. v. p. 135[6]; Handl. Ann. k. k. naturhist. Hofmus. xii. p. 194[7].

♀. *Macrocephalus pallidus*, Westw. loc. cit. p. 27[8].

Hab. North America[1 3 5], Kentucky[4], Georgia[2 6 8], Carolina[6 7], Texas[6 7].—Mexico, Ciudad in Durango 8100 feet (*Forrer*).

A single female specimen from Durango seems to belong here. It is a little darker than the three females from Georgia and Texas before me (including Westwood's type of *M. pallidus*), and has the scutellum more finely punctured. The insect cannot be associated with either of the forms of *M. ståli*, on account of the finely and simply granulated sides of the anterior lobe of the pronotum. The pronotum is more flattened behind than in *M. lepidus*.

12. **Macrocephalus spiculosus,** n. sp. (Tab. IV. figg. 24, ♂; 25, ♀.)

Macrocephalus spiculosus, Champ., Handl. Ann. k. k. naturhist. Hofmus. xii. p. 200, t. 9. fig. 40 (antenna)[1].

♂. Comparatively short, ochraceous or greenish, the basal half of the pronotum, a patch at the apex of the scutellum, and sometimes the base of the latter, the base of the corium, the spiculæ on the head, and a patch on the outer side of the femora, black, fuscous, or brownish; the antennæ varying in colour—in some specimens blackish or fuscous, in others with the apical joint only dark; the inner (covered) portion of the corium carmine; the head, the basal joints of the antennæ above, the anterior half of the pronotum, the coxæ and femora, the two hinder tibiæ, and the outer edges of the corium and connexivum, thickly set with setiferous spiculæ, which are longer and more prominent on the pronotum than elsewhere, the rest of the surface set with smooth pallid granules, these forming a variegate pattern on the scutellum; the basal half of the pronotum and the base of the scutellum coarsely and closely, the rest of the scutellum and the corium finely, punctured. Antennæ stout, joint 4 oblong-ovate, a little longer than 2 and 3 united, 3 slightly longer than 2. Pronotum with the lateral angles broad and distinctly raised, excised at the apex, the excision forming two short teeth; the two dorsal carinæ prominent, subparallel, reaching the anterior lobe. Scutellum narrowing a little forwards, rounded at the apex, and with a smooth, prominent median carina, which becomes much stouter towards the base. Abdomen cordate, the connexivum wide, the first segment feebly subangularly dilated laterally at the apex.

♀. Broader, almost unicolorous, ochraceous or greenish, the scutellum usually with a transverse darker spot before the apex; the apical joint of the antennæ ovate, about as long as joints 2 and 3 united; the connexivum broader and extending to a little beyond the scutellum.

Length $6\frac{1}{4}$–7, breadth $2\frac{1}{2}$–$3\frac{1}{2}$ millim.

Hab. Mexico, Atoyac in Vera Cruz, Teapa in Tabasco (*H. H. Smith*[1]); Guatemala, Chiacam, Coban, Senahu, and Tamahu in Vera Paz (*Champion*[1]).

Numerous examples from Vera Paz, two only from Mexico, all from the Atlantic slope. The males vary in colour, the dark apical patch sometimes extending forwards

to the middle of the scutellum. The pallid granules on the scutellum are so arranged as to form a variegate pattern. There is no trace of a dark transverse median fascia on the scutellum and connexivum in the male. Allied to *M. asper*, Stål, from Venezuela, but more robust, with shorter spines and hairs, and also differing from it in the absence of the protuberances on the pronotum (*fide* Handlirsch). Chiacam specimens are figured.

AGREUOCORIS.

Agreuocoris, Handlirsch, Ann. k. k. naturhist. Hofmus. xii. p. 217, fig. 32 (1898).

The following is a translation of Herr Handlirsch's description of this genus and species :—

"Head long, shaped as in the genus *Glossopelta*, Handl., nearly cylindrical, without frontal projection, and without grooves for the antennæ at the sides, or a groove below or above the eyes; tylus well-defined; juga as in *Glossopelta*, &c.; genæ strongly produced, the bucculæ small, but well-defined, both without grooves for the antennæ; rostral groove not wider than the rostrum, distinctly margined; eyes and ocelli as in *Glossopelta*; rostrum strong and straight, with the first joint much longer than the second; (antennæ with joints 2–4 wanting in the unique example seen). Thorax as in *Glossopelta*, the anterior portion of the pronotum well separated from the posterior portion, the lateral angles strongly developed and bent upwards, the median groove distinct, the carina not very much raised; sides without antennal grooves. Angles of the prosternum produced, enclosing the tip of the rostrum. Scutellum very similar to that of *Glossopelta*, elongate, tongue-like, and extending to the apex of the abdomen. Anterior wings similar to those of *Glossopelta*, the corium narrow, with the third and fifth veins united; the third vein of the membrane forked, the cells between the fifth and seventh veins very much as in *Glossopelta*, &c. Hind wings with a well-developed hamus and anal appendage; the seventh and ninth veins divided. Intermediate and hind legs very like those of *Glossopelta*, short and stout (anterior pair broken off). Abdomen not very flat, similar to that of *Glossopelta*, broadly heart-shaped, with strongly raised sides and feebly emarginate apex. Sculpture and colour as in the allied genera."

This genus is closely allied to *Macrocephalus*, differing from it in the venation of the membrane and in the absence of a channel on the anterior side of the genæ. The first (third) vein of the membrane is forked in *Agreuocoris*, and simple in *Macrocephalus*.

1. **Agreuocoris noualhieri.**

Agreuocoris noualhieri, Handl. l. c. p. 218, fig. 33 [1].

"♂. Form similar to that of *Glossopelta acuta*, Handl. Head nearly cylindrical, closing the genæ entirely in front, the edge of the rostral groove not much produced, unarmed; ocellar elevations feebly raised; first joint of the antennæ rather thin, not pointed. Pronotum one and a half times broader than long, distinctly depressed at the middle. plainly carinate, the lateral projections strongly curved upwards, slightly directed backwards and distinctly emarginate at the tip. Angles of the prosternum strongly produced. Scutellum long, tongue-shaped, nearly extending to the apex of the abdomen, without distinct median carina. Membrane dark brown. Abdomen broadly heart-shaped, decidedly broader than the thorax, the terminal segment slightly emarginate, the connexivum with entire margins, only a little produced at the angles of the first and second segments. Body smooth, the head finely granulate, the anterior portion of the pronotum and the sides of the breast more coarsely granulate, like the exposed parts of the abdomen; behind the middle, the pronotum is very closely and strongly punctured; scutellum coarsely punctured at the middle, the sides finely and closely punctured. Underside pale light brown. The head above and laterally almost black; the pronotum black-brown above, near the edges brownish, behind the middle with some reddish spots; scutellum nearly black; the exposed sides of the abdomen brownish; corium and first joint of the antennæ dark; the rostrum and legs brownish. Length 10 millim."

Hab. ? MEXICO [1].

Fam. ARADIDÆ.

This family is represented in Central America by about the same number of species as the Tingitidæ, and by nearly as many genera, viz. twenty-three, two only of these being at all numerous in species, e. g. *Brachyrrhynchus* and *Neuroctenus*. Dr. Bergroth (1892) gives the total number of Nearctic Aradidæ as thirty-six (belonging to five genera), of which twenty-five belong to the one genus *Aradus*; and of the Palæarctic species as sixty-seven, with the same number of genera. The Neotropical Aradidæ are of sluggish habits, living under the bark of decaying trees, often in gloomy places in the forest. With one exception, *Aradus falléni*, Stål, the whole of the Central-American species belong to the Brachyrrhynchinæ, the rostrum in this subfamily being very short and received in a deep groove along the underside of the head. All the known American genera but one *—*Melanosterphus*, Stål—are represented within our limits, whence five others are added. Some of the species are very local, and the males appear to be very much rarer than the females. We possess two pairs still *in coitu*, showing that the female is placed above the male during copulation.

I am indebted to Dr. Bergroth, who has made these insects his special study for many years, for the loan of several of his types, as well as for a great deal of assistance in working out the large number of Central-American species; and also to Dr. Aurivillius for the loan of various American Aradidæ described by Stål.

Subfam. *ARADINÆ*.

ARADUS.

Aradus, Fabricius, Syst. Rhyng. p. 116 (part.) (1803); Fieber, Europ. Hemipt. pp. 34, 110 (1861); Stål, Enum. Hemipt. iii. p. 135; Bergroth, Proc. Ent. Soc. Wash. ii. p. 335.
Piestosoma, Laporte, Essai Class. Syst. Hémipt., in Guérin's Mag. Zool. 1832, p. 35.
Subg. *Quilnus*, Stål, Enum. Hemipt. iii. p. 137 (1873).

Aradus includes no fewer than ninety-four described species, a large proportion of which are from the Palæarctic or Nearctic regions. A single species only is known to me from Central America †.

* *Phimophorus*, Bergr., appears to be a Reduviid.

† Dr. Bergroth has also recorded two other species of the genus from within our limits, but it is possible there is some mistake about the localities. They are as follows:—*A. crenatus*, Say, from Mexico (Wien. ent. Zeit. xiv. p. 168); and *A. quadrilineatus*, Say, from Panama (Proc. Ent. Soc. Wash. ii. p. 335), on the authority of Uhler.

1. **Aradus falléni.** (Tab. V. fig. 1, ♀.)

Aradus falléni, Stål, Rio Jan. Hemipt. i. p. 68 (♂) (1860)[1]; Enum. Hemipt. iii. p. 136[2]; Bergr. Proc. Ent. Soc. Wash. ii. p. 338[3].

Aradus leucotomus, Costa, Ann. Mus. Zool. Nap. ii. p. 143, t. 2. figg. 2, 2 *a* (♀) (1864)[4].

Aradus pallidicornis, Stål, Enum. Hemipt. iii. p. 136 (♀) (1873)[5].

? *Aradus lugubris,* Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 281 (part.)[6].

Hab. North America, Texas[1].—Mexico[6]; Guatemala, Chacoj in Vera Paz (*Champion*); Panama, Panama city, San Miguel in the Pearl Is. (*Champion*).—Brazil, Rio Janeiro[1 2]; Antilles, Cuba[5].

Of this widely distributed species three specimens, females, have been obtained within our limits, the one from Chacoj being discoloured and in a mutilated condition. They vary somewhat in the colour of the legs and antennæ, and have the apex of each of the segments of the connexivum more or less pale. Costa's specimen[4] was probably from Brazil. Dr. Bergroth (Wien. ent. Zeit. xiv. p. 168) has recorded *A. falléni* from Mexico. Prof. Uhler[6] adds Lower California and Mexico to the distribution of the Holarctic *A. lugubris,* Fallén. The specimen from Panama is figured.

Subfam. *BRACHYRRHYNCHINÆ.*

Group **CALISIARIA.**

CALISIUS.

Calisius, Stål, Rio Jan. Hemipt. i. p. 68 (1860); Enum. Hemipt. iii. p. 138; Bergroth, Ent. Tidskr. 1894, p. 98.

Aradosyrtis, Costa, Ann. Mus. Zool. Nap. ii. p. 132 (1864).

The three known species of this genus are from Brazil, S. Europe, and Australia respectively. The one now added is closely allied to the Brazilian insect, the type of Stål's genus.

1. **Calisius ferox,** n. sp. (Tab. V. figg. 2, 2 *a*, ♀; 2 *b*, antenna.)

♀. Ovate, rather broad, opaque, ochraceous or obscure testaceous, the pronotum mottled with fuscous; the scutellum blackish or fuscous, with six pallid oblong spots—an oblique one at the sides below the base, one on each side of the median carina about the middle, and one below this extending to the margin, these latter sometimes connected; the connexivum ferruginous or fusco-ferruginous, each segment with the granules along the apical and inner margins ochraceous or fusco-testaceous and the other marginal prominences black; the legs and antennæ testaceous, the apical joint of the latter fuscous; the under surface ferrugineo-testaceous. Head punctulate and closely studded with short, pallid, blunt spines, the antenniferous processes acute and divergent, the post-ocular spines extending outwards to beyond the eyes, the latter small; the apical process broad, as long as the rest of the head, emarginate at the tip; antennæ short, joints 1 and 2 equal, 3 longer and more slender than 2, 4 ovate, about as long as 3. Pronotum sinuate at the sides before the middle, the posterior portion arcuately dilated, the base bisinuate; the four carinæ, sides, and apex studded with stout blunt spines, the interspaces punctulate. Scutellum closely, rather coarsely punctate, the raised basal portion, margins, and median carina studded with stout blunt spines.

Connexivum broad, punctulate; each segment with a row of pallid granules along the apical and inner margins, and three prominent blunt teeth along the outer margin. The narrow space between the connexivum and scutellum set with five coarse pallid equidistant granules. Beneath closely, finely granulate. Rostrum very short, not nearly reaching the base of the head.

Length 4, breadth $1\frac{3}{4}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

Three examples. Closely allied to *C. pallipes*, Stål, from Brazil; but differing from it in the form of the antennæ (*C. pallipes* being described as having joints 2–4 each a little longer than 1 and subequal in length) and other particulars. The connexivum has three prominent blunt teeth (two black and one ochraceous) on the outer border of each segment; viewed laterally, it is divided into two parts, a dorsal and ventral, each of which is similarly armed.

CALISIOPSIS, n. gen.

Head very broad, short, truncate behind, concave on each side between the eyes, which are large and prominent, the post-ocular portions short and dentiform, the antenniferous processes broad and bidentate at the apex; the apical process broad, as long as the rest of the head, reaching to the middle of the terminal joint of the antennæ, unemarginate at the tip; antennæ very short, joints 1–3 exceedingly short and subequal in length, 4 ovate, stout, and a little longer than the others united; rostrum reaching the base of the head. Pronotum convex behind, bisinuate at the base, irregularly quadricarinate on the disc. Scutellum completely covering the elytra, extending to a little beyond the apex of the fifth abdominal segment, broadly triangularly raised in front and carinate down the middle thence to the apex. Connexivum broad, denticulate at the sides. Anterior coxæ moderately, the intermediate and hind coxæ widely, separated. Venter rather convex. Legs very short, the femora moderately stout and unarmed.

This genus includes a single species from the Isthmus of Panama. It differs from *Calisius*, Stål (=*Aradosyrtis*, Costa), in the very differently formed head and antennæ.

1. **Calisiopsis ampliceps,** n. sp. (Tab. V. figg. 4, 4 *a*, ♀; 4 *b*, antenna.)

♀. Rather broad, oval, opaque, testaceous or ochraceous, the apical process of the head, the pronotum, and the sides of the connexivum mottled with fuscous, the scutellum pale, with an oblong mark at the middle of the sides and the raised basal portion blackish or fuscous, the body beneath ferrugineo-testaceous; the antennæ and legs testaceous, the femora sometimes infuscate in the middle. Head (with the eyes) nearly as wide as the front of the pronotum, closely punctured, the sides, base, and apical process studded with coarse pallid granules and with two short rows of similar granules in the middle in front, together forming a V-shaped prominence, the post-ocular teeth extending outwards as far as the eyes; antennæ glabrous, the apical joint granulate. Pronotum arcuately dilated at the sides behind and narrowing forwards, the lateral margins denticulate from about the middle forwards and crenulate thence to the base, the four carinæ formed by rows of coarse granules, the interspaces closely punctured and sometimes with other scattered granules. Scutellum closely punctured, the median carina and margins each with a row of granules, the raised basal portion also studded with coarse pallid granules. Connexivum rugulosely punctured; the apical margin of each segment studded with coarse pallid granules, the lateral margin with about four short teeth. The under surface rugulose at the sides, smoother in the middle.

Length $2\frac{7}{8}$, breadth $1\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba, Tolé (*Champion*).

Three specimens. The one from Tolé (without head) is smaller, and has the sides of

the pronotum more coarsely denticulate in front, and the median carina and margins of the scutellum set with erect tubercles; it may belong to a different species. A Bugaba example is figured.

Group **BRACHYRRHYNCHARIA.**

PHYLLOTINGIS.

Alyattes, Stål, Hemipt. Afric. iii. p. 30 (1865); Enum. Hemipt. iii. pp. 139, 140 (1865) (nec Thomson, 1864).
Phyllotingis, Walker, Cat. Hemipt. Heteropt. vii. p. 3 (1873).
Euloba, Uhler, in Kingsley's Stand. Nat. Hist. ii. p. 284 (1884).
Phyllocraspedum, Bergroth, Verh. zool.-bot. Ges. Wien, xxxvi. p. 59 (1886).

Of this remarkable genus three species are known, all Tropical American, one of them extending on to the Isthmus of Panama. Walker's name appears to have been overlooked, partly through his quite erroneous description of the antennæ and partly on account of his having wrongly referred the genus to the Tingitidæ.

1. **Phyllotingis interjecta.** (Tab. V. fig. 3, ♂.)

Phyllocraspedum interjectum, Bergr. Ent. Tidskr. xv. pp. 98–100, fig. (♀) (1894) [1].

Hab. Panama, Bugaba (*Champion*: ♂).—Colombia [1].

Two males of this species were found by myself at Bugaba. The form of the connexivum readily distinguishes this insect from the two other known members of the genus—*P. eximia,* Hagl. (=*arida,* Walk., and *pallida,* Uhl.), and *P. lanceolata* (F.); *P. eximia,* moreover, has a transverse nervure at the middle of each of the segments of the connexivum, and in *P. lanceolata* these segments are truncate and unemarginate behind. Dr. Bergroth (*loc. cit.*) has figured a portion of the connexivum of each of the three species. Specimens of *P. eximia* and *P. lanceolata* are contained in the British Museum.

PROXIUS.

Proxius, Stål, Enum. Hemipt. iii. pp. 139, 141 (1873).

Three Central-American species are referred to this genus, based upon *P. incrustatus,* Stål, from Rio Janeiro, the type of which is before me. In all these insects the surface is thickly coated with a hard pallid incrustation, which is moulded into peculiarly shaped callosities on the head, pronotum, and scutellum, the two grooves on the upper-side of the head forming cavities for the reception of a portion of the antennæ in repose. They are difficult to describe in an intelligible manner, and will be more easily identified from our figures.

a. Head excavate behind the eyes; pronotum tricarinate anteriorly, the posterior lobe with a transverse sinuous ridge; scutellum with an oblique foliaceous plate on each side of the disc . . . . . *palliatus*, n. sp.

b. Head not excavate behind the eyes.

a'. Pronotum with a bilobed prominence on the disc anteriorly, the posterior lobe usually with a transverse sinuous ridge; scutellum with an inflated median elevation . . . . . *personatus*, n. sp.

b'. Pronotum with a bifurcate prominence on the disc anteriorly, the posterior lobe with one or two short ridges on each side of the middle of the disc; scutellum with a T-shaped elevation . . . . . *gypsatus*, Bergr.

c'. Pronotum without a prominence on the disc anteriorly (? broken off), the posterior lobe with a straight transverse ridge on the disc and a similar ridge along the basal margin; scutellum without an elevation on the disc . . . . . [*incrustatus*, Stål (Brazil).]

1. **Proxius palliatus**, n. sp. (Tab. V. figg. 5, ♂; 5 *a*, antenna.)

Fusco-ferruginous above, almost covered by a thick whitish or griseous incrustation, the under surface also in great part covered by a similar incrustation; the legs and antennæ ferruginous. Head with the post-ocular portions broadly, angularly dilated at the sides to far beyond the eyes, and concave externally; the antenniferous processes spiniform and slightly divergent; the apical lobes moderately long; the callosities forming a posteriorly widened median ridge and some short oblique ridges on each side; antennæ short, joint 1 rather stout, extending to some distance beyond the apical lobes of the head, 2 ovate, short, 3 slender, filiform, twice as long as 2, 4 one-half longer than 2, pilose at the tip. Pronotum transversely quadrate, sinuate at the sides, with the angles of both lobes prominent; the anterior lobe obliquely truncate on each side in front, concave at the sides, and nearly covered by raised callosities, these forming a prominent median and two oblique ridges on the disc and some transverse or oblique ridges at the sides; the posterior lobe with a prominent transverse bisinuate ridge on the disc, and with a laterally projecting raised margin along the outer part of the base. Scutellum with an oblique foliaceous ridge on each side of the disc, the two ridges meeting behind, and a callous lateral margin. Abdomen moderately long; the outer apical angles of the connexival segments slightly projecting, becoming more prominent posteriorly, that of the sixth segment dentiform in the male and obtusely dentiform in the female; the genital lobes rather slender.

Length $3\frac{1}{2}$, breadth $1\frac{1}{2}$ millim. (♂ ♀.)

Hab. GUATEMALA, Las Mercedes (*Champion*: ♂); PANAMA, Bugaba (*Champion*: ♀).

Two specimens. Differs from the other Central-American species of the genus in the strongly wrinkled callosities of the head and pronotum, the pronotum (viewed laterally) appearing to have four deep excavations in front and the post-ocular portions of the head a deep cavity.

2. **Proxius personatus**, n. sp. (Tab. V. figg. 6, 7, ♀.)

Fusco-ferruginous, in great part covered by a thick whitish, whitish-ochreous, or griseous incrustation; the legs and antennæ ferrugineo-testaceous, the apical joint of the latter infuscate. Head with the post-ocular portions broadly, angularly dilated to far beyond the eyes; the antenniferous processes spiniform and slightly divergent; the apical lobes moderately long; the callosities forming a raised elongate-triangular plate on the middle of the head, outside which is a groove for the reception of the antennæ; antennæ short, joint 1 stout, extending to the apex of the apical lobes of the head, 2 ovate, 3 slender,

filiform, nearly twice as long as 2, 4 a little longer than 2, pilose at the tip. Pronotum transversely subquadrate, sinuate at the sides; the anterior lobe obliquely truncate on each side in front, concave externally, and truncate on each side at the base, with the angles prominent, the incrustation moulded into an inflated anteriorly bilobed prominence on the middle of the disc; the posterior lobe with a feebly raised transverse bisinuate ridge on the disc, and a laterally projecting raised margin along the outer part of the base. Scutellum with an oblong more or less inflated prominence in the centre, connected in front with the raised basal margin, and with the sides also margined. Abdomen moderately long; the connexivum almost evenly rounded externally, the sixth segment with the outer apical angles obtuse or subangular; the genital lobes stout.

Length $3\frac{1}{2}$–$4\frac{1}{2}$, breadth $1\frac{1}{2}$–2 millim. (♂ ♀.)

Hab. PANAMA, Bugaba, Volcan de Chiriqui, David, San Miguel in the Pearl Islands (*Champion*).

Var.? The anterior lobe of the pronotum more dilated behind, with both angles very prominent, the posterior lobe without a transverse sinuous ridge on the disc; the segments 2–5 of the connexivum feebly arcuately dilated at the sides towards the apex.

Length 5, breadth $2\frac{1}{4}$ millim. (♀.)

Hab. GUATEMALA, Balheu in Vera Paz (*Champion*).

Sixteen specimens of the typical form and one of the variety; the latter may prove to belong to a distinct species. Recognizable by the more or less inflated prominence on the middle of the scutellum and the bilobed prominence on the disc of the anterior lobe of the pronotum. In the specimen from Bugaba (♀) (fig. 6), the outer apical angles of the sixth connexival segment are subangular, instead of obtuse, as in all the other examples obtained, including both sexes.

3. **Proxius gypsatus.** (Tab. V. figg. 8, ♂; 8 *a*, antenna; 9, ♀, var.)

Proxius gypsatus, Bergr. Ent. Monthly Mag. xxxiv. p. [1]*.

Fusco-ferruginous, in great part covered by a thick whitish or whitish-ochreous incrustation; the legs and antennæ ferruginous, the membrane fuscous. Head with the post-ocular portions broadly, subangularly or acutely dilated to far beyond the eyes; the antenniferous processes spiniform and slightly divergent; the apical lobes short; the callosities forming a raised elongate-triangular plate on the middle of the head, outside which is a groove for the reception of the antennæ; antennæ short, joint 1 stout, reaching the apex of the apical lobes of the head, 2 ovate, a little shorter than 1, 3 slender, filiform, about one-half longer than 2, 4 not longer than 3, pilose at the tip. Pronotum transversely subquadrate, sinuate at the sides; the anterior lobe obliquely truncate on each side in front, hollowed externally, and truncate on each side at the base, the anterior angles usually more prominent than the posterior ones, the incrustation moulded into an inflated anteriorly bifurcate prominence on the middle of the disc; the posterior lobe with one or two transverse or oblique oval elevations on each side of the middle of the disc, a short feeble transverse ridge between them, and a curved laterally projecting ridge along the outer part of the anterior and posterior margins. Scutellum with a basal ridge, extending down the middle to the apex (forming a T-shaped prominence), the sides also margined. Abdomen moderately long; the connexivum almost evenly rounded externally, the sixth segment angularly projecting at the outer apical angles in both sexes; the genital lobes slender in the male, stouter in the female.

Length $3\frac{1}{2}$–$4\frac{1}{2}$, breadth $1\frac{1}{4}$–$1\frac{3}{4}$ millim. (♂ ♀.)

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* Dr. Bergroth's description of this species and of *Nannium parvum* (*infrà*, pp. 84, 85) are in the press, but not yet published.

Hab. GUATEMALA, Senahu in Vera Paz, Zapote (*Champion*); PANAMA, Bugaba (*Champion*).—VENEZUELA[1].

Seven examples. One of those from Bùgaba has an additional transverse prominence on each side of the disc of the posterior lobe of the pronotum, and the anterior angles of the latter, as well as the post-ocular portions of the head, more acute.

This species may be separated from *P. personatus* by the shorter third joint of the antennæ (this joint not being longer than the fourth in the present insect), the more strongly bifurcate prominence on the middle of the anterior part of the pronotum, the posterior lobe of the latter being margined towards the sides in front as well as behind, and with differently shaped callosities on the disc, the uninflated median prominence on the scutellum, the more produced apical angles of the sixth abdominal segment, &c. A pair from Bugaba are figured, showing the extreme forms.

CARVENTUS.

Carventus, Stål, Hemipt. Afric. iii. p. 32 (1865); Enum. Hemipt. iii. pp. 139, 140 (1873).

Of the six described members of this genus, all are eastern but one, *C. mexicanus*, Bergr. The American species closely resembles Stål's type of *C. denticollis*, from Mysol (now before me); but it is without the abruptly projecting tooth at the middle of the sides of the pronotum, and also has the post-ocular portions of the head longer and the apical lobes of the pronotum emarginate in front.

1. **Carventus mexicanus.** (Tab. V. figg. 10, ♂; 11, ♀.)

Carventus mexicanus, Bergr. Wien. ent. Zeit. xiv. p. 167 (♂) (1895)[1].

Hab. MEXICO, San Marcos (*Bilimek, in Mus. Vind. Cæs.*: ♂[1]); PANAMA, Volcan de Chiriqui 3000 feet (*Champion*: ♀).

The type (♂) of this species, communicated by Dr. Bergroth, is not in good condition, the incrustate portions of the head and pronotum being apparently injured or not fully developed. A description of the female is now given from the better-preserved specimen from Chiriqui:—

♀. Oblong-ovate, ferrugineo-fuscous, the head, the anterior lateral lobes of the pronotum, the sides of the scutellum, and the connexivum covered by a thick greyish-ochreous incrustation; the antennæ ferrugineo-testaceous, the legs testaceous. Head broad, subtriangular, the sides of the narrow basal portion obliquely converging posteriorly; the post-ocular portions swollen and dilated laterally to beyond the eyes; the antenniferous processes long, spiniform, subparallel; the apical lobes long; the callosities forming a rather broad median ridge, enclosing a rostriform process in front; antennæ slender, joint 1 moderately stout, extending to nearly one-half beyond the apical lobes of the head, clothed with a few short hairs, 2 rather more than half the length of 1, 3 about two and one-half times the length of 2, 4 a little longer than 2, clothed with long hairs at the tip. Pronotum transverse, trapezoidal; the anterior lateral lobes obliquely emarginate in front and also emarginate at the sides, with prominent angles, the callosities with punctiform impressions; the posterior lobe slightly dilated and callous at the sides, not incrustate.

Scutellum with a thick callous margin at the sides, widening a little anteriorly. Abdomen oval, truncate at the apex; the incrustation of the under surface projecting a little beyond the lateral margins towards the apex of each segment, their outer apical angles thus appearing somewhat prominent; the genital lobes moderately stout.

Length 5, breadth $2\frac{1}{10}$ millim.

Differs from the type (♂) in having the head, pronotum, and connexivum more thickly incrustate; the head broader, with the post-ocular portions swollen and projecting outwards to considerably beyond the eyes; the basal joint of the antennæ a little more elongate; the abdomen more rounded at the sides, the outer apical angles of each segment not projecting. Both specimens have a scar on the middle of the disc of the pronotum, suggesting the possibility of a portion of the incrustation being broken off.

PSOROSOMA, n. gen.

Head subquadrate, abruptly constricted into a short neck behind, with two long divergent frontal spines; the post-ocular portions rectangular, of about the same length and breadth as the eyes; the antenniferous processes long and stout, terminating in a straight spine; antennæ short, joint 1 stout, curved, extending as far as the apex of the frontal spines of the head, 2 slender, shorter than 1, thickened at the apex, 3 very slender, about one-half longer than 2, constricted at the base and slightly thickened at the tip, 4 piriform, half the length of 3; rostrum very short, not nearly reaching the base of the head. Pronotum very much wider than the head, as long as broad, broadly emarginate at the base for the reception of the basal portion of the triangular scutellum; the posterior lobe short, transversely convex, arcuately dilated at the sides; the anterior lobe parallel, with five prominences in front (a median and two lateral on each side), the outer ones acute. Elytra reaching the apex of the fifth abdominal segment; corium extending to about the middle, gradually tapering behind; membrane with prominent nervures. Abdomen long and subparallel, a little wider than the pronotum, convex beneath; connexivum broad, the spiracles placed close to the outer margin and partly visible from above, the outer apical angles of the sixth segment produced posteriorly into a long triangular process. Legs rather elongate, the femora moderately stout and finely setose, the tibiæ slender and clothed with very short hairs. Body narrow, elongate, not granulate, in great part covered by a thick pallid incrustation, which is moulded into irregular callosities on the head, pronotum, and scutellum.

This genus, represented by a single species from the State of Panama, is nearest allied to *Proxius* and *Carventus*, differing from both in the structure of the head, antennæ, &c. Its narrow, flattened, elongate shape and the bifurcate apex of the abdomen give it a Forficuliform appearance.

1. **Psorosoma forficulinum,** n. sp. (Tab. V. figg. 15, ♀; 15 *a*, antennæ.)

♀. Obscure testaceous, the head, the pronotal and scutellar callosities, and the connexivum whitish-ochreous, the third and fourth antennal joints fuscous. Head with an oblique ridge on each side running backwards from the inner margin of the eyes, two short parallel ridges in front, and a short median ridge, the latter excised in front for the reception of a short rostriform process; antennæ with the basal joint and the apical half of the fourth very sparsely pilose. Pronotum with irregularly confluent callosities on the anterior lobe, these forming five processes in front—the intero-lateral one very prominent and obliquely truncate, the outer one divergent and acute; the posterior lobe set with a few bristly hairs, with a space in the middle and the sides broadly callose, the lateral portions feebly transversely wrinkled. Scutellum carinate down the middle, and with the sides slightly raised. Abdomen very gradually widening to about the middle and subparallel beyond; the fifth segment with a projecting tooth on the

outer margin before the apex; the sixth segment a little narrower than the fifth, the long triangular processes parallel externally; the genital lobes moderately long.

Length (including the frontal spines) $7\frac{1}{2}$, breadth 2 millim.

Hab. PANAMA, Bugaba (*Champion*).

One example.

HESUS.

Hesus, Stål, Stett. ent. Zeit. 1862, p. 437; Enum. Hemipt. iii. pp. 139, 141.

A Tropical-American genus including three or four variable species. The Central-American representatives may be separated thus:—

The inner pronotal callosities narrowly separated anteriorly, the intervening space depressed; apical process of the head feebly bilobed in front . . *cordatus*, F.

The inner pronotal callosities less approximate, the intervening space tuberculate, the tubercles sometimes fused and forming two longitudinal, anteriorly diverging rugæ; apical process of the head distinctly bilobed in front . . . . . *flaviventris*, Burm.

1. **Hesus cordatus.** (Tab. V. fig. 12, ♂.)

Aradus cordatus, Fabr. Syst. Rhyng. p. 117 (1803)[1].

Hesus cordatus, Stål, Hemipt. Fabr. i. p. 95 (♂ ♀)[2]; Enum. Hemipt. iii. p. 142[3].

Hesus annuliger, Stål, Stett. ent. Zeit. 1862, p. 438 (♀)[4]; Enum. Hemipt. iii. p. 142[5].

Crimia cincticornis, Walk. Cat. Hemipt. Heteropt. vii. p. 11 (♂) (1873)[6].

Hesus simiolus, Bergr. Ent. Tidskr. xv. p. 102 (♂) (1894)[7].

Hab. MEXICO[4 5] (*Sallé, in Mus. Holm.*: ♀); NICARAGUA, Chontales (*Janson*: ♀); PANAMA, Bugaba, Volcan de Chiriqui, David, Caldera (*Champion*: ♂ ♀).—SOUTH AMERICA[1 2], Surinam[3], Amazons[6 7].

We have obtained fourteen specimens of this species from within our limits, all but one of them being from Chiriqui.

The male of the insect described by Stål as *H. cordatus* (Fabr.), communicated by Dr. Aurivillius, differs from the Chiriqui examples of the same sex in having the abdomen slightly constricted at the sides beyond the middle, with the apical angles of the fourth segment a little less prominent; but this peculiarity is more apparent than real. The females agree precisely with the types of *H. annuliger*, Stål, and *H. cincticornis* (Walk.). Of the latter there are five specimens (♂ ♀) in the British Museum. *H. cordatus* chiefly differs from *H. flaviventris* in having the two inner callosities on the pronotum more approximate, the narrow groove between them being without conspicuous tubercles or rugæ; it also has the basal joint of the antennæ usually a little more elongate and the apical process of the head more feebly bilobed.

The insect is also constantly paler in colour. The antennæ incline to ferruginous, the basal joint included, the apex of the third joint and the base of the fourth being

often darker. The tibiæ are more or less distinctly biannulate. A male from Bugaba is figured. *H. acuminatus* (Fabr.) is also a very closely allied form *.

2. **Hesus flaviventris.** (Tab. V. fig. 13, ♂.)

Dysodius flaviventris, Burm. Handb. der Ent. ii. p. 255 (1835)[1]; Herr.-Schäff. Wanz. Ins. ix. p. 140, t. 312. fig. 957 (♀)[2].

Hesus flaviventris, Stål, Enum. Hemipt. iii. p. 142[3].

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*: ♂ ♀).—Colombia, Bogota[3]; Brazil[1 2], Rio Janeiro[3].

Var. **subarmatus.** (Tab. V. fig. 14, ♀.)

Hesus subarmatus, Stål, loc. cit. p. 142 (♀)[4].

Hab. Mexico, Atoyac in Vera Cruz (*Schumann*: ♀), Teapa in Tabasco (*H. H. Smith*); British Honduras, Belize (*Blancaneaux*; *Mus. Brit.*); Guatemala, Senahu, Tamahu, La Tinta, and Teleman in Vera Paz (*Champion*: ♂ ♀); Panama (*Boucard*: ♂ ♀).—Guiana, Surinam[4].

Not uncommon on the Atlantic slope of Guatemala. In the variety *subarmatus* the anterior portion of the pronotum is armed with a small tubercle on each side and has another small tubercle at the anterior angles; it also has the tubercles and rugæ between the inner callosities less prominent, and the outer callosities less raised. The abdomen of the male is shaped as in *H. cordatus*; the connexivum is more or less spotted with ochraceous, and the ventral surface, the apex excepted, is usually of the same colour. A specimen (♂) from Bogota, determined by Stål as *H. flaviventris*, and the type (♀) of *H. subarmatus* have been communicated by Dr. Aurivillius.

We figure two specimens agreeing with these: a male of the typical form from Bugaba, and a female of the var. *subarmatus* from La Tinta.

HELENUS.

Helenus, Buchanan White, Journ. Linn. Soc., Zool. xiv. p. 485 (1879).

The single species referred to this genus, *P. hesiformis*, Buch. White, from the Amazons, chiefly differs from *Hesus* in the shaggy pubescence of the body, antennæ, and legs, the more irregular anastomosing neuration of the membrane, the short apical joint of the antennæ, and the sulcate sternum and venter. In the second species now added the sternum is scarcely more deeply sulcate than in *Hesus*, this insect having the head much smaller than in that genus, with a short apical process.

* In the British Museum there is an immature male specimen of a *Hesus* from Pará nearly agreeing with Stål's description of *H. acuminatus*. It has the fifth connexival segment more dilated at the apical angles than in *H. cordatus* (♂), and the abdomen itself broader behind, the pronotum with two rugæ between the two median callosities.

1. **Helenus hirsutus,** n. sp. (Tab. V. fig. 16, ♂.)

Subparallel and a little widened posteriorly (♂), oblong-ovate (♀), nigro-fuscous or black, the second and third joints of the antennæ at the base, and the basal halves of the tibiæ, more or less ferruginous; the surface sparsely clothed with very short, matted, decumbent, brownish-ochraceous hairs, with long, fine, scattered, pallid erect hairs intermixed. Head much longer than broad, comparatively small, rugose; the apical process short, parallel, shortly bilobed at the tip, extending very little beyond the antenniferous processes, which are obtusely spiniform in front and slightly rounded externally; the post-ocular portions short, rounded; the eyes rounded and rather small, prominent; antennæ with joints 1 and 3 subequal in length, 1 stout, rugose, extending to nearly three-fourths beyond the apical process of the head, villose, 2 slightly longer than 4 and much shorter than 3, 4 a little more than half the length of 3, 2–4 with scattered hairs. Pronotum transverse, irregularly rugose and subgranulate, sinuate at the sides and much narrowed anteriorly, the base broadly and obliquely produced on each side behind, truncate opposite the scutellum; the anterior portion rounded externally, constricted into a very short neck in front (in one specimen with prominent anterior angles), the two inner callosities flattened and narrowly separated; the posterior portion very broad, rounded at the sides anteriorly and parallel behind, the sculpture consisting of short, transverse, sinuous, interrupted rugæ. Scutellum transversely rugose. Corium granulate, parallel and not wider than the pronotum externally, rounded at the apex, and arcuate-emarginate within. Membrane with irregular anastomosing nervures. Abdomen a little rounded at the sides in the female, more parallel in the male, truncate at the apex; connexivum sparsely punctured, the outer apical angles of segments 1–4 slightly projecting, that of the fifth segment rounded; the sixth segment abruptly and obliquely narrowed, subangularly dilated at the middle in the male; genital lobes short and stout; spiracles placed near the outer margin, those on the fifth and sixth segments marginal. Beneath rugose, the meso- and metasternum depressed along the middle. Legs sparsely villose, the femora stout and rugose.

Length $8\frac{1}{4}$–9, breadth $3\frac{1}{2}$–4 millim. (♂ ♀.)

Hab. PANAMA, Bugaba (*Champion*).

It is possible that this insect may be inseparable from *H. hesiformis*, Buch. White (the type, ♂, of which I have not seen), but the Amazonian species is described as ferruginous in colour, and strongly villose and setose, with the apical process of the head unarmed; it would also appear to have a much deeper groove along the sternum and venter.

MIORRHYNCHUS, n. gen.

Head subquadrate, longer than broad, with a stout, subconical, slightly declivous, unemarginate apical process and short, spiniform, parallel, antenniferous processes, the post-ocular portions a little longer than the small, prominent eyes; antennæ much longer than the head and pronotum united, joint 1 elongate, extending to about three-fourths beyond the apical process of the head, 2 one-half the length of 3, 3 slightly longer than 1, 4 very short, much shorter than 2, 1 moderately stout, 2–4 slender, 4 piriform, 1 and 2 hirsute, 4 pilose at the tip; rostrum short, reaching the base of the head. Pronotum moderately transverse, subtruncate at the base, the sides constricted at the middle; the anterior portion much narrower than the posterior portion, abruptly constricted in front into a narrow neck, the disc occupied by four suboval, flattened callosities; the posterior portion granulate. Scutellum triangular, obsoletely carinate down the middle. Elytra reaching the terminal genital segment; corium extending to a little beyond the first segment, emarginate within; membrane with irregular, anastomosing, rather prominent nervures. Connexivum broad, the margins entire, the fifth and sixth segments (♂) produced at their outer apical angles. Terminal genital segment (♂) very convex, flattened above, cordate, as long as broad, the genital lobes rather elongate. Intermediate coxæ a little more widely separated than the hind coxæ. Venter flattened; the spiracles placed close to the outer margin, those on the fifth and sixth segments marginal. Legs long and slender; the femora moderately thickened, asperate, and hirsute.

Body oblong, widening posteriorly, flattened, the head, pronotum, and apex of the abdomen clothed with short curled hairs.

This genus includes a single species from the State of Panama. It is perhaps nearest allied to *Hesus*, from which it differs in the shape of the head, the relatively longer antennæ and legs, the antennæ with the first and third joints very elongate and the fourth joint short, the small eyes, the prominent neck-like constriction of the pronotum, the pronotum itself truncate at the base, the long genital segment in the male, &c.

1. **Miorrhynchus longipes,** n. sp. (Tab. V. figg. 17, ♂ *; 17 *a*, antenna.)

♂. Fuscous, opaque, the head, femora, and antennæ more or less ferruginous, the antennæ with the third joint black at the apex and the fourth black at the middle, the basal halves of the tibiæ flavo-testaceous; the under surface, some rows of spots on the abdomen excepted, and the upper surface of the connexivum in part, coated with a thin whitish-ochraceous incrustation; the short shaggy hairs on the head, pronotum, and apical margin of the abdomen, and the bristly hairs on the two basal joints of the antennæ, as well as those on the femora, fulvous; the raised portions of the scutellum and corium, and the apical margins of the connexival segments, also clothed with very short fulvous hairs. Head with a smooth bare oblong spot on each side between the eyes, the post-ocular portions moderately tumid, unarmed. Pronotum with the neck-like apex not wider than the head, granulate; the posterior portion conspicuously granulate, slightly callous at the sides, the latter parallel behind, rounded at the middle, and converging in front; the anterior portion rounded at the sides in front, the outer callosities with a row of short hairs similar to those on the margins. Scutellum transversely wrinkled on each side of the indistinct median ridge, the margins slightly thickened. Corium arcuate-emarginate within. Abdomen widening to about the middle and slightly narrowing beyond; connexivum rugosely punctured, the outer apical angles of the fifth segment laterally produced, those of the sixth segment strongly and subtriangularly produced posteriorly. Venter with a smooth bare spot on the middle of each segment, that on the sixth segment large.

Length 7, breadth $2\frac{3}{5}$ millim.

Hab. PANAMA, Volcan de Chiriqui 3000 feet (*Champion*).

One example.

ARTAGERUS.

Artagerus, Stål, Rio Jan. Hemipt. i. p. 67 (1860); Enum. Hemipt. iii. pp. 139, 142.

In this Tropical-American genus the basal joint of the antennæ and the femora and tibiæ appear to be excessively stout, but this is partly due to the spaces between the setæ being filled up by an earthy incrustation, which usually leaves the tips only of the setæ visible. The other joints of the antennæ are very slender. The surface of the body is also more or less coated with earthy matter, hiding the sculpture and to some extent the very short, coarse, rusty-brown, matted hairs. In the males the sixth segment of the abdomen is strongly raised in the centre in front of the genital segments, forcing the apex of the membrane into a vertical position in repose.

Three of the four known species of the genus occur within our limits, whence one other is now added.

a. Antennæ with joint 1 nearly twice as long as 3; outer apical angles of the connexival segments angularly projecting in both sexes, that of the fifth dilated into a very prominent triangular plate in the male . . . *setosus,* Stål.

* The insect is more widened posteriorly and also more elongate than represented by our artist.

b. Antennæ with joints 1 and 3 nearly equal in length.
  a'. Abdomen with the outer apical angles of the segments 1–4 subangularly dilated in the male, the fifth segment triangularly dilated in this sex; antennæ with joint 1 as long as the head . . . . . *crispatus*, Stål.
  b'. Abdomen with segments 1–3 parallel, and 4 and 5 conjointly rotundato-dilatate in the male *, the outer apical angles of each segment obtusely projecting in the female; antennæ with joint 1 shorter than the head.
    a''. Anterior angles of the pronotum projecting laterally in a short lobe . . . . . *histricus*, Stål.
    b''. Anterior angles of the pronotum projecting forwards . . . . . *hispidus*, n. sp.

1. **Artagerus setosus.** (Tab. V. fig. 18, ♂.)

Artagerus setosus, Stål, Enum. Hemipt. iii. p. 142 (♀) [1].

Hab. Panama, Bugaba (*Champion*).—Colombia, Bogota [1].

Found in some numbers by myself in the "tierra caliente" of Chiriqui. In both sexes of this species the connexival segments are angularly dilated at their outer apical angles, the fifth being widened into a triangular plate. The males have the abdomen much narrower than the females and subparallel, with the apex abruptly truncate, the fifth segment dilated laterally into a very prominent triangular plate. The type (♀) has been communicated by Dr. Aurivillius.

2. **Artagerus crispatus.** (Tab. V. figg. 19, ♂; 20, ♀.)

Artagerus crispatus, Stål, Rio Jan. Hemipt. i. p. 67 (♂) [1]; Enum. Hemipt. iii. p. 142 [2].

Hab. Panama, Volcan de Chiriqui (*Champion*).—Brazil, Rio Janeiro [1 2].

Two males and two females from Chiriqui are referred to this species, the type (♂) of which is before me. The males have the abdomen subparallel, with the outer apical angles of each segment angularly dilated, the fifth widened into a triangular laterally projecting plate, the sixth also triangular and projecting posteriorly. In the females the abdomen is broader and rounded at the sides, with the fourth segment wider than the fifth. The basal joint of the antennæ is about as long as the head, and a little longer than the third joint. The type is dirty and somewhat abraded, our specimens showing the coarse, short, curled hairs much more distinctly above and beneath.

3. **Artagerus histricus.** (Tab. V. figg. 21, ♂; 22, ♀.)

Artagerus histricus, Stål, Stett. ent. Zeit. 1862, p. 438 (♂ ♀) [1]; Enum. Hemipt. iii. p. 142 [2].

Hab. Mexico (*Mus. Holm.* [1 2]; *coll. Signoret* [1]), Atoyac in Vera Cruz (*Schumann*: ♂).

One of the types, a female, of this species has been communicated by Dr. Aurivillius, and I have also seen the male belonging to the Vienna Museum. Stål does not

* The male of *A. hispidus* is unknown.

mention the long, curved, caudiform prolongation of the outer apical angles of the sixth connexival segment, so conspicuous in the male. The anterior angles of the pronotum are sublobate and laterally projecting, a character separating the present species from the following closely allied form, as well as from the other known members of the genus. The type of the female and the Atoyac male are figured.

4. **Artagerus hispidus,** n. sp. (Tab. V. fig. 23, ♀.)

♀. Ovate, broad, nigro-fuscous, clothed with very short, coarse, matted, decumbent, rusty-brown hairs, which are very conspicuous on the raised portions of the surface; the tarsi and the apical joint of the antennæ, and sometimes the second and third joints also, ferruginous; the basal joint of the antennæ and the femora and tibiæ thickly setose. Head obliquely narrowing behind the eyes, the latter prominent, the apical process a little longer than the lateral ones; antennæ short, joints 1 and 3 subequal in length, 1 excessively stout, shorter than the head, 2–4 slender, 2 slightly longer than 4, 4 short and piriform. Pronotum deeply emarginate at the sides and apex; the anterior portion with the two outer callosities raised and very prominent, the inner ones indistinct, the anterior angles rounded and projecting forwards; the posterior portion one-half wider, callous and arcuately dilated at the sides, the disc with two short posteriorly converging carinæ, joining the median carina of the scutellum behind. Abdomen broad, rounded at the sides, the outer apical angles of the connexival segments obtusely projecting, that of the sixth segment angular or sublobate. Beneath rugulose, the ventral segments each with a small, smooth, depressed spot in the centre. Legs short, the femora and tibiæ extremely stout.

Length 7–7¾, breadth 3–3½ millim.

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*).

Seven examples. Very like *A. crispatus* (♀), but with a short basal joint to the antennæ and the outer apical angles of the connexival segments much less prominent. From *A. histricus* (♀), with which it agrees in the form of the antennæ and abdomen, it may be readily distinguished by the anterior angles of the pronotum not being dilated laterally into a short lobe. A specimen from Bugaba is figured.

APHLEBODERRHIS.

Aphleboderrhis, Stål, Rio Jan. Hemipt. i. p. 67 (1868); Enum. Hemipt. iii. pp. 140, 142.

A single species, from Brazil, was referred to this genus by Stål, and a closely allied form from the State of Panama is now added. *Pictinus hirticornis*, *P. tomentosus*, and *P. procerulus*, Bergr., all from Brazil, also belong to it, and *Aradus pubescens*, Walk., from Central and South America, is perhaps best placed here. This last-mentioned insect is very dissimilar in appearance from *A. pilosa* and *A. comata*, but Dr. Bergroth informs me that *P. tomentosus* and *P. procerulus* are intermediate forms. Our two species may be separated thus:—

Anterior angles of the pronotum broadly dilated and ciliate; head transverse, the apical process subtriangularly dilated, cleft at the tip; apical joint of the antennæ shorter than the third; hairs on antennæ, body, and legs curled and decumbent . . . . . *comata*, n. sp.

Anterior angles of the pronotum not dilated (formed as in *Hesus*); head as long as broad, the apical process parallel, not cleft at the tip; antennæ with the apical joint longer than the third; hairs on antennæ, body, and legs erect and bristly . . . . . *pubescens*, Walk.

1. **Aphleboderrhis comata,** n. sp. (Tab. V. figg. 24, ♂; 24 *a*, antenna, ♂; 25, ♀, from beneath.)

Oblong, rather broad, piceous or piceo-ferruginous, the antennæ and legs obscure ferruginous, the membrane smoky, with an obscure luteous mark near the apex of the corium; the antennæ, legs, and upper surface somewhat thickly clothed with long, curled, fulvous hairs, these forming a dense fringe along the margins of the anterior portion of the pronotum and two rows on its disc; the bare portions of the surface almost smooth. Head transverse, rounded at the sides behind the rather large eyes; the apical process short, subtriangularly dilated from a little before the base, and cleft at the tip, scarcely extending beyond the short antenniferous processes; antennæ moderately long, stout, 1 thicker than the others, extending to about three-fourths beyond the apical process of the head, 2 one-half the length of 3, 3 a little longer than 1, 4 one-half longer than 2, clavate towards the tip. Pronotum transverse, feebly emarginate behind; the anterior portion dilated laterally into a broadly rounded, slightly raised lobe, and nearly as wide as the posterior portion, the disc appearing depressed; the posterior portion sparsely granulate, the sides rounded anteriorly and parallel behind. Scutellum transversely wrinkled and with a median ridge. Corium extending to the apex of the first segment. Abdomen a little more parallel in the male than in the female, the sixth segment obliquely narrowing in both sexes; the terminal genital segment of the male very convex, transversely cordate, the genital lobes very short; the sixth segment subtruncate at the apex in the female, leaving the emarginate first genital segment narrowly exposed. Beneath almost smooth; the meso- and metasternum very broadly depressed in the centre, the first ventral segment with a deep depression in the middle, the following segments flattened along the median line. Legs stout.

Length $5\frac{1}{2}$–$6\frac{1}{2}$, breadth $2\frac{1}{2}$–3 millim. (♂ ♀.)

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*).

Four males and four females. Differs from *A. pilosa*, Stål, from Rio Janeiro, the type of which is before me, in the broadly rounded and strongly dilated sides of the anterior portion of the pronotum (the pronotum appearing abruptly constricted at the middle laterally), the hairs along the margins of which are coarser, curled, and form a close fringe. There is also no trace of the two tubercles on the disc in front, present in *A. pilosa*, but not mentioned by Stål. The under surface is almost smooth in the present species, rugose in *A. pilosa*, a space along the middle of the venter excepted. A pair from Bugaba are figured.

2. **Aphleboderrhis pubescens.** (Tab. V. figg. 26, ♂; 26 *a*, antenna; 27, ♀, from beneath.)

Aradus pubescens, Walk. Cat. Hemipt. Heteropt. vii. p. 38 (♀) (1873)[1].

Pictinus pubescens, Leth. et Serv. Cat. Hémipt. Hétéropt. iii. p. 44[2].

Nigro-fuscous or piceous, the membrane with a small pallid streak near the apex of the corium, the antennæ, legs, and sides of the abdomen sometimes obscure ferruginous, the apical half of the fourth antennal joint usually ferruginous, the apical margins of the connexival segments ochraceous in pale specimens; the upper surface sparsely clothed with long, erect, fulvous hairs, the granules, the scutellar carina, and the apical margins of the connexival segments clothed with very short, matted ochraceous or brownish hairs; the legs and antennæ thickly clothed with long, projecting, bristly hairs, the apical half of the fourth antennal joint thickly pilose. Head rather convex, small, as long as broad, with a short, parallel,

unemarginate apical process and short, obtuse antenniferous processes, the post-ocular portions tumid and unarmed, the eyes rather large and not prominent; antennæ stout, moderately long, joints 1 and 3 subequal in length, 1 granulate, about three times as long as the apical process, 2 considerably shorter than 1, 2 and 3 more slender than 1 or 4, 4 fusiform, longer than 3. Pronotum greatly narrowed and declivous at the sides in front, widened and convex behind, about twice as wide at the base as at the apex; the anterior portion very short, narrowing forwards, with two prominent flattened callosities on the disc; the posterior portion rounded at the sides anteriorly and parallel behind, irregularly rugose and granulate. Scutellum transversely rugose, raised along the middle. Corium acute at the tip, with the apical margin obliquely truncate. Abdomen somewhat rounded at the sides, the margins crenulate; the sixth connexival segment obliquely narrowed in the male, abruptly narrowed in the female. Meso- and metasternum coarsely, transversely wrinkled at the sides, depressed in the centre. Venter finely rugulose, the segments 2–5 each with a narrow, smooth, posteriorly widened space in the centre, limited on each side by a pallid streak, the first segment with a deep transverse depression in the centre; the spiracles placed near the outer margin. Terminal genital segment of the male very broad and convex, transversely cordate, the genital lobes very short and inconspicuous.

Length 5–6$\frac{1}{10}$, breadth 2$\frac{1}{10}$–2$\frac{2}{3}$ millim. (♂ ♀.)

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, San Juan in Vera Paz (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).—AMAZONS, Pará [1].

We possess eight examples of this species, five of which are from Chiriqui, these agreeing with the type in the British Museum. I had at first treated this insect as the type of a new genus, but Dr. Bergroth, who has made the Aradidæ his special study for many years, is of opinion that it cannot be separated from *Aphleboderrhis*. In some specimens the surface is partly covered by a pallid incrustation. A male from Teapa and a female from San Juan are figured.

PICTINUS.

Pictinus, Stål, Enum. Hemipt. iii. pp. 140, 145 (1873).

Dr. Bergroth informs me that of the numerous species referred by him to *Pictinus*, four only (*P. aurivillii*, *P. fronto*, *P. invalidus*, and *P. modigliani*) really belong to it, *P. hirticornis*, *P. procerulus*, and *P. tomentosus* pertaining to *Aphleboderrhis*, and *P. asiaticus* and *P. pusio* to a new genus. One only was known to Stål, *P. cinctipes*, the type of the genus. The six Central-American species, all of which are treated as new, differ *inter se* in the form of the head, antennæ, and pronotum, and to some extent in the position of the spiracles, these being sometimes placed on or so near the lateral margins of the abdomen as to be visible from above. The genus seems best placed here. The neuration of the membrane is obsolete or very indistinct, a character separating *Pictinus* from most of the allied forms.

a. Head transverse.

a'. Posterior portion of the pronotum unarmed at the sides; spiracles small.

a''. Anterior angles of the pronotum strongly, abruptly lobate; head with a long, acute, post-ocular spine.

a'''. Antennæ with the fourth joint shorter than the third . . . . *armatus*, n. sp.
b'''. Antennæ with the fourth joint longer than the third . . . . *spiniger*, n. sp.
b''. Anterior angles of the pronotum rounded and moderately prominent; head with a short post-ocular spine . . . . . *breviceps*, n. sp.
b'. Posterior portion of the pronotum with a short marginal tooth; the anterior angles laterally projecting; spiracles very prominent; head rounded behind the eyes . . . . . *denticollis*, n. sp.
b. Head subquadrate, the post-ocular portions rather broad and armed with a short tooth; anterior angles of the pronotum rounded and explanate. *quadraticeps*, n. sp.
c. Head transversely suborbicular, small, the post-ocular portions rounded; anterior angles of the pronotum rounded . . . . . *parviceps*, n. sp.

1. **Pictinus armatus**, n. sp. (Tab. VI. figg. 1, ♀; 1 *a*, antenna.)

♀. Oblong-ovate, piceo-ferruginous; the anterior angles of the pronotum, the apical margins of the connexival segments, and also the anterior margins externally, the first tarsal joint, and the basal half of the tibiæ, flavous; the inner portion of the connexivum, and the first three antennal joints at the base and the fourth at the apex, ferruginous; the membrane smoky-black, with a luteous spot behind the apex of the corium. Head broad and strongly transverse, granulate; the spiniform antenniferous processes acute, parallel; the apical process parallel, moderately long, extending to the middle of the first antennal joint, bilobed at the tip; the post-ocular portions short, and armed with a long, acute spine, which extends outwards to some distance beyond the eyes; antennæ moderately long, joints 1 and 3 subequal in length, 2 slightly shorter than 3, 4 nearly as long as 2, piriform, pilose at the tip, 2 and 3 slender. Pronotum transverse, broad, granulate, subtruncate behind, sinuate at the sides before the middle and narrowed in front, with rather narrow, laterally projecting, raised, very prominent, lobiform anterior angles; the posterior portion parallel behind, rounded at the sides anteriorly. Scutellum carinate. Corium extending to a little beyond the first segment, the nervures granulate. Abdomen rounded at the sides, the sixth segment abruptly and obliquely narrowed posteriorly and feebly emarginate behind; the genital lobes short; the spiracles on the fifth and sixth segments visible from above.

Length $4\frac{1}{4}$, breadth $2\frac{1}{10}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

One example. Very like *P. cinctipes*, Stål, from Bogota, the type (♂) of which is before me; but with the antennæ more slender and with a shorter apical joint, the apical process of the head bilobed in front, the post-ocular spines longer and more acute, the anterior angles of the pronotum longer, more narrowly lobate, and outwardly directed, the pronotum itself parallel behind, the broad flavous annulus on the tibiæ extending to the base, &c.

2. **Pictinus spiniger**, n. sp. (Tab. VI. figg. 2, ♀; 2 *a*, antenna.)

♀. Oblong-ovate, piceo-ferruginous; the anterior angles of the pronotum, the apical margins of the connexival segments, and also the anterior margins externally, ochraceous; the inner portion of the connexivum, and the antennæ, the tips of the second and third joints and the base of the fourth excepted, ferruginous; the membrane smoky-black, with an obscure luteous spot behind the apex of the corium, extending along its apical margin; the legs fuscous, the knees and tarsi paler. Head broad and strongly transverse, granulate; the spiniform antenniferous processes acute, parallel; the apical process moderately long, extending to the middle of the first antennal joint, narrowed behind, and unemarginate at the tip; the post-ocular portions short, armed with a long, acute spine, which extends outwards to some distance

beyond the eyes; antennæ moderately long, joints 1 and 2 subequal in length, 3 a little shorter than 2, 4 considerably longer than 3, subfusiform, sparsely pilose, 2 and 3 slender. Pronotum transverse, broad, granulate, subtruncate behind, strongly constricted at the sides before the middle; with rather narrow, raised, lobiform, very prominent anterior angles, which project outwards and a little forwards; the posterior portion parallel behind, rounded at the sides anteriorly. Scutellum carinate. Corium extending to the middle of the second segment, the nervures granulate. Abdomen somewhat rounded at the sides, the sixth segment obliquely narrowed posteriorly, and feebly emarginate behind; the genital lobes short; the spiracles on the sixth segment visible from above.

Length $4\frac{2}{3}$, breadth $2\frac{1}{10}$ millim.

Hab. PANAMA, Volcan de Chiriqui 3000 feet (*Champion*).

One specimen. Very like *P. armatus*; but differing from it in having the third antennal joint shorter and the fourth joint much more elongate, the apical process of the head unemarginate in front, the pronotum more constricted at the sides, with the anterior angles more prominent and directed a little forwards, the corium longer, and the tibiæ unicolorous. The head is formed exactly as in *P. armatus*, except that the apical process is entire. From *P. cinctipes* it may be separated by the abruptly lobate anterior angles, the more slender antennæ, &c.

3. **Pictinus breviceps,** n. sp. (Tab. VI. fig. 3, ♂, head and part of the pronotum.)

♂. Oblong, piceo-ferruginous, the anterior angles of the pronotum and the basal half of each of the connexival segments ochraceous, the posterior half of these segments ferruginous within and blackish externally; the antennæ with the base of the second and the apex of the fourth joint, and the legs, ferrugineo-testaceous; the membrane smoky-black, with two obscure luteous marks at the base. Head transverse, rather broad, granulate; the post-ocular portions very short, and armed with a short tooth; the apical process slightly emarginate in front; the spiniform antenniferous processes subparallel; antennæ rather short, joint 1 stout, extending to more than one-half beyond the apical process of the head, 2 short, 3 nearly twice as long as 2, 4 shorter than 3, piriform, pilose at the tip. Pronotum transverse, subtruncate at the base and apex, granulate, sinuate at the sides before the middle, and narrowed in front; the anterior portion short and depressed, with rather prominent rounded anterior angles, the disc with two small flattened callosities, one on each side of the middle; the posterior portion parallel behind and rounded at the sides in front. Scutellum carinate down the middle. Corium parallel at the base and of the same width as the pronotum, extending to a little beyond the first segment, the nervures granulate. Abdomen subparallel in front, gradually rounded at the sides posteriorly, the outer apical angles of the sixth segment obtusely projecting; the genital lobes broad; the spiracles small, those on the fifth and sixth segments distinctly visible from above.

Length $3\frac{3}{4}$, breadth $1\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

One example. Smaller than *P. quadraticeps*, the head transverse, with the post-ocular portions very short, the antennæ shorter, with less elongate third joint, the anterior angles of the pronotum less explanate, the spiracles on the fifth and sixth segments rather prominent, the genital lobes broader, &c.

4. **Pictinus denticollis,** n. sp. (Tab. VI. figg. 4, ♀, from beneath; 5, head and part of the pronotum from above, ♀.)

♀. Oblong-ovate, piceous, the basal half of the connexival segments obscure ochraceous, the legs and under surface obscure ferruginous; the membrane smoky-black, obscurely luteous at the base. Head transverse, granulate; the post-ocular portions very short, rounded, with a few short hairs; the spiniform antenniferous processes divergent; the apical process moderately long, constricted behind, slightly emarginate at the tip; antennæ short, joint 1 extending to a little beyond the apical process of the head, 2 short, 3 and 4 subequal in length, 3 much longer than 2, 4 piriform, pilose at the tip. Pronotum transverse, broad, granulate, subtruncate at the base and apex, sinuate at the sides before the middle, and narrowed in front; the anterior portion short, depressed, with prominent, obtuse, outwardly directed anterior angles, the disc with a groove down the middle and a flattened callosity on each side of it; the posterior portion parallel behind, obliquely narrowing in front, and with a short tooth at the middle of the outer margin. Scutellum carinate. Corium parallel at the base and of the same width as the pronotum, extending to the apex of the first segment, the nervures granulate. Abdomen rounded at the sides posteriorly; the sixth segment truncate at the apex, with the outer apical angles prominent; the genital lobes moderately stout; the spiracles prominent, placed near or upon the outer margin, those on the first, fifth, and sixth segments visible from above, the first very prominent.

Length $3\frac{1}{2}$, breadth $1\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui 3000 feet (*Champion*).

Two females. In this small species the sides of the posterior portion of the pronotum are dilated at the middle into a short tooth, the head is transverse, with the post-ocular portions very short and armed with a few short hairs only, and the spiracles on the first segment are very prominent, projecting laterally to considerably beyond the connexival margins.

5. **Pictinus quadraticeps,** n. sp. (Tab. VI. fig. 6, ♀, head and part of the pronotum.)

Oblong-ovate, piceous, the anterior angles of the pronotum, and the base of each of the connexival segments rather broadly, ochraceous, the posterior half or more of these segments obscure ferruginous within and blackish externally; the membrane smoky-black, with two obscure luteous marks at the base; the tibiæ ferrugineo-testaceous at the base. Head subquadrate, granulate; the post-ocular portions rather broad, with a short acute tooth at the outer angle, not extending outwards so far as the eyes; the apical process stout, subconical, moderately long, unemarginate at the tip; the spiniform antenniferous processes rather short, subparallel; antennæ with joint 1 stout, extending to about two-thirds beyond the apical process of the head, 2 slightly shorter, 3 twice as long as 4, 4 short, piriform, not longer than 2, pilose at the tip. Pronotum broad, transverse, subtruncate at the base and apex, granulate, deeply sinuate at the sides before the middle, and narrowed in front; the anterior portion short and depressed, explanate at the sides anteriorly, with prominent rounded anterior angles, the disc with two flattened callosities and a median groove; the posterior portion parallel behind, rounded at the sides in front. Scutellum transversely wrinkled and with a median carina. Corium parallel at the base and of the same width as the pronotum, extending to a little beyond the first segment, the nervures granulate. Abdomen somewhat rounded at the sides, the sixth segment truncate behind, with the outer apical angles rather prominent; the genital lobes broad in the female, narrow in the male; the spiracles small, the apical ones only visible from above.

Length $4\frac{3}{4}$–$6\frac{1}{4}$, breadth 2–$2\frac{3}{4}$ millim. (♂ ♀.)

Hab. PANAMA, Volcan de Chiriqui 3000 feet (*Champion*).

Two males and one female. Allied to *P. armatus*, but with the head less transverse, the post-ocular spines short, the antenniferous processes shorter, the third joint of the antennæ much more elongate, the anterior angles of the pronotum rounded, &c.

6. **Pictinus parviceps,** n. sp. (Tab. VI. fig. 7, ♂, head and part of the pronotum.)

♂. Subparallel, rather narrow, nigro-piceous, the base of the femora, the connexivum, and under surface obscure ferruginous. Head transversely suborbicular, small, granulate; the post-ocular portions rounded, unarmed; the spiniform antenniferous processes slightly divergent; the apical process short, subconical, unemarginate at the tip; antennæ short, joint 1 extending to about two-thirds beyond the apical process of the head, 2 a little shorter than 1, 3 nearly one-half longer than 2, 4 slightly shorter than 3, piriform, pilose at the tip. Pronotum transverse, subtruncate at the base and apex, granulate, sinuate at the sides before the middle, and narrowed in front; the anterior portion short and depressed, with rather prominent rounded anterior angles, the disc hollowed in the middle; the posterior portion parallel behind and rounded at the sides in front. Scutellum obsoletely carinate down the middle. Corium parallel at the base and of the same width as the pronotum, extending to a little beyond the first segment, the nervures granulate. Abdomen subparallel, gradually rounded at the sides posteriorly, the sixth segment truncate at the apex, the outer apical angles of the fifth and sixth segments slightly projecting; the genital lobes rather narrow; the spiracles very small, the apical ones only visible from above.

Length $3\frac{2}{3}$, breadth $1\frac{1}{4}$ millim.

Hab. Panama, Volcan de Chiriqui 3000 feet (*Champion*).

One specimen. Differs from *P. breviceps* in the small head, dark legs and antennæ, obsoletely carinate scutellum, and narrow, subparallel general shape.

NANNIUM.

Nannium, Bergroth, Ent. Monthly Mag. xxxiv. p. (1898) (part.).

Head transverse, with spiniform antenniferous processes and an apical feebly emarginate process about reaching the middle of the basal joint of the antennæ, the post-ocular portions rounded or terminating laterally in a very short spine; antennæ with joints 1 and 2 stout or moderately stout, granulate, 3 longer and more slender, 4 piriform and pilose at the tip; rostrum short, reaching the base of the head. Pronotum transverse, subtruncate at the base and apex, the base slightly emarginate in the middle; the anterior portion short, very much narrower than the posterior portion, depressed, with two tubercles on the disc and outwardly directed, projecting, lobiform anterior angles, the anterior margin with an oblique tooth on each side below; the posterior portion rounded at the sides anteriorly, and with an undulate transverse ridge on the disc. Scutellum triangular, carinate down the middle. Abdomen moderately long, subparallel or feebly rounded at the sides, the apical margins of the connexival segments somewhat prominent. Corium reaching as far as the middle or apex of the second segment, raised above the membrane, more or less arcuate-emarginate within, the apex obtuse, the median nervure prominent. Membrane with a few distinct nervures. Intermediate coxæ more widely separated than the hind coxæ; intercoxal portion of the meso- and metasternum broadly flattened. Venter convex, the fifth segment unisinuate at the apex in the female, the spiracles placed near the lateral margin. Mesosternal orifice prominent, surrounded by a raised carina. Legs short, slender, the femora moderately stout and finely granulate.

Two very small species are referred to this genus, which has the general facies of *Pictinus*; but differs from it in having the corium more raised, longer, and emarginate within, the membrane with some regular raised nervures, the pronotum distinctly toothed on each side at the apex below, and with two prominent tubercles on the anterior portion, and a transverse undulate ridge on the posterior portion. The position of the spiracles, the more feeble neuration of the membrane, and the form of the pronotum separate it from *Brachyrrhynchus.*

Dr. Bergroth bases this genus chiefly upon the position of the spiracles, and includes

under it, in addition to *N. parvum*, two South-American species with a differently formed pronotum. The above-mentioned characters are taken from *N. bituberculatum* and *N. parvum* only.

1. **Nannium bituberculatum,** n. sp. (Tab. VI. figg. 8, ♂; 8 *a*, antenna.)

♂. Subparallel, moderately long, nigro-piceous, the tips of the antennæ, the basal third of the tibiæ, and the tarsi testaceous; the ridges on the pronotum, scutellum, and corium, and the apical margins of the connexival segments, set with very short, stiff, inconspicuous hairs. Head coarsely granulate, with two short parallel ridges on the disc behind, the post-ocular portions rounded, the spiniform antenniferous processes slightly divergent, the apical process feebly emarginate at the tip; antennæ with joints 1 and 2 stout, 3 nearly twice as long as 2, 4 about as long as 1. Pronotum coarsely granulate; the anterior portion with two very prominent tubercles on the disc, the lobiform anterior angles raised and very prominent, obtuse at the tip; the posterior portion fully one-half wider than the anterior portion, and wider than the abdomen, narrowly reflexed at the sides anteriorly, the transverse trisinuate ridge prominent. Scutellum with the oblique ridge on each side terminating in a tubercle in front, the median carina prominent. Connexivum with the outer apical angles of each segment angularly projecting, the apical margins of segments 1–4 raised; the genital lobes moderately stout; the spiracles prominent.

Length $3\frac{1}{10}$, breadth $1\frac{1}{4}$ millim.

Hab. GUATEMALA, Cerro Zunil (*Champion*).

One example. Differs from the following species in the stouter antennæ, the rounded and unarmed post-ocular portions of the head, the much more prominent pronotal tubercles, the bituberculate scutellum, and the more angularly projecting outer apical angles of the connexival segments.

2. **Nannium parvum.** (Tab. VI. figg. 11, ♂; 12, ♀, from beneath.)

Nannium parvum, Bergr. Ent. Monthly Mag. xxxiv. p. [1].

Subparallel (♂), oblong-ovate (♀), varying in colour from nigro-fuscous to fuscous or ferrugineo-fuscous, the membrane inclining to testaceous at the base; the elevated portions of the head, pronotum, and scutellum, and the apical margins of the connexival segments, closely set with very short, stiff, fulvous hairs. Head finely granulate, with two short, posteriorly converging ridges on the disc behind, the post-ocular portions armed with a short tooth, the spiniform antenniferous processes slightly divergent, the apical process feebly emarginate at the tip; antennæ with joints 1 and 2 moderately stout, 3 rather slender, one-half longer than 2, 4 about as long as 1. Pronotum finely granulate; the anterior portion with two rather large tubercles on the disc, the lobiform anterior angles moderately prominent, rounded at the tip; the posterior portion wider than the base of the abdomen, narrowly reflexed at the sides anteriorly, the transverse trisinuate ridge prominent. Scutellum sharply carinate down the middle. Connexivum with the apical margin of each of the segments 1–5 somewhat prominent, rounded at the sides in the female, the outer apical angles of segments 4–6 rather prominent in the male; the genital lobes stout in the female, more slender in the male. Beneath rugosely punctured, the abdomen with rows of flattened callosities on each side, the segments 1–5 with a smooth spot in the middle; the orifice very prominent.

Length $2\frac{3}{4}$–$3\frac{1}{2}$, breadth 1–$1\frac{2}{5}$ millim.

Hab. GUATEMALA, El Tumbador (*Champion*: ♂); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*: ♂ ♀).—VENEZUELA [1].

Six specimens. Varies in size and colour, pale examples appearing to have the legs subannulate. Dr. Bergroth's type (♂) is from Venezuela. A male from Guatemala and a female from Chiriqui are figured.

DYSODIUS.

Dysodius, Lepeletier de Saint-Fargeau et Serville, Encycl. Méth. x. p. 654 (1825); Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 304; Stål, Hemipt. Afric. iii. p. 31; Enum. Hemipt. iii. pp. 140, 143.

This genus includes some of the largest forms of the family Aradidæ, and is characteristic of the forest-regions of Tropical America. Four of the described species are American, all of them occurring within our limits.

a. Abdominal segments 2–6 each separately dilated laterally into a rather broad rounded plate, the margin of which is crenulate, the third segment with a ring-shaped elevation within . . . . . *lunatus*, F.

b. Abdominal segments conjointly rounded and crenulate at the sides, the third segment without a ring-shaped elevation within.

a'. Legs elongate; post-ocular tooth short; pronotum more or less dilated at the sides posteriorly . . . . . *crenulatus*, Stål.

b'. Legs comparatively short; post-ocular tooth extending outwards to beyond the eyes; pronotum subparallel at the sides posteriorly.

a''. Apical process of the head spinose at the sides; joint 2 of the antennæ more than half the length of 1; outer margins of the apical lobes of the pronotum rounded; hind femora reaching to a little beyond the abdominal margins . . . . . *brevipes*, Bergr.

b''. Apical process of the head crenate at the sides; joint 2 of the antennæ not half the length of 1; outer margins of the apical lobes of the pronotum oblique; hind femora not reaching beyond the abdominal margins . . . . . *ampliventris*, Bergr.

1. **Dysodius lunatus.** (Tab. VI. fig. 9, ♂.)

La Punaise araignée, Stoll, Punaises, p. 53, t. 13. fig. 84 (1788)[1].

Acanthia lunata, Fabr. Ent. Syst. iv. p. 72 (1794)[2].

Aradus lunatus, Fabr. Syst. Rhyng. p. 117[3]; Wolff, Icones Cimic. p. 168, t. 17. fig. 162[4].

Dysodius (*Aradus*) *lunatus*, Guér. Icon. Règne Anim., Ins. iii. p. 349, t. 56. figg. 15, 15 *a*[5].

Dysodius lunatus, Herr.-Schäff. Wanz. Ins. viii. p. 119, t. 287. fig. 884[6]; Stål, Hemipt. Fabr. i. p. 95[7]; Enum. Hemipt. iii. p. 143[8]; Uhler, in Kingsley's Stand. Nat. Hist. ii. p. 284, fig. 326[9].

Depodius lunatus, Stål, Stett. ent. Zeit. 1862, p. 437[10].

Hab. Mexico[5 9 10], Jalapa (*Höge*), Omealca (*M. Trujillo*), Oaxaca (*Mus. Brit.*); British Honduras, Belize, R. Sarstoon, R. Hondo (*Blancaneaux*); Guatemala, Cubilguitz, Cahabon, Panzos, Chacoj, San Juan, and Tamahu in Vera Paz, El Reposo (*Champion*); Nicaragua, Chontales (*Janson*); Costa Rica, Caché (*Rogers*); Panama (*Boucard*), Bugaba, Volcan de Chiriqui (*Champion*). — South America[3 4], Colombia[8], Venezuela, Surinam[1 8], Amazons, Brazil[6 7].

A very variable species, the figures of Stoll and Guérin representing extreme forms

of it. The larger form with longer and more curved apical lobes to the pronotum is confined to Tropical South America. *D. lunatus* is not uncommon in the "tierra caliente" of Central America, occurring on both the Atlantic and Pacific slopes. A male of the normal Central-American form, from Bugaba, is figured.

2. **Dysodius crenulatus.** (Tab. VI. figg. 10, ♂; 10 *a*, terminal genital segment in profile, drawn out.)

Depodius crenulatus, Stål, Stett. ent. Zeit. 1862, p. 437 (♀)[1].
Dysodius crenulatus, Stål, Enum. Hemipt. iii. p. 143[2].

Hab. MEXICO[2] (*coll. Signoret*[1]); BRITISH HONDURAS, R. Sarstoon (*Blancaneaux*); GUATEMALA, Panzos, La Tinta, and San Gerónimo in Vera Paz, El Tumbador, El Reposo, Las Mercedes, Cerro Zunil, San Isidro, Pantaleon, Mirandilla, Zapote, Capetillo (*Champion*); PANAMA (*Boucard*), Bugaba, Volcan de Chiriqui, Caldera (*Champion*).—COLOMBIA, Bogota[2].

An abundant insect in Central America, especially on the Atlantic slope, extending from the "tierra caliente" to an elevation of about 5000 feet in the mountains. A male from El Reposo is figured.

3. **Dysodius brevipes.** (Tab. VI. fig. 13, ♂.)

Dysodius brevipes, Bergr. Wien. ent. Zeit. xvii. p. 26 (♂) (Jan. 1898)[1].

Broad ovate, ferrugineo-fuscous, the connexivum more or less mottled with fuscous; the upper surface rather coarsely granulate, and here and there coated with a pale luteous incrustation. Head longer than broad, the granules very coarse, becoming spiculiform at the sides and base; the spiniform antenniferous processes long, acute, and divergent; the apical process long and stout, bifid at the tip, armed with obliquely projecting spines on each side; the post-ocular portions broad, semi-lunate, curving outwards and forwards to beyond the eyes, terminating in a rather long spine in the male; antennæ moderately long, joint 1 stout, about one-third longer than the apical process, 2 considerably shorter than 1, 3 a good deal longer than 2, 4 one-half the length of 3. Pronotum with the apical lobes broad, moderately long, slightly curved, rounded laterally and at the tip; the posterior portion separated from the anterior portion by a deep groove, rounded at the sides behind, becoming subparallel forwards; the lateral and apical margins (the lobes included) coarsely crenate. Abdomen broad, rounded and crenulate at the sides in both sexes; the genital lobes broad in the female, narrow in the male; the ventral surface somewhat closely, rather finely punctate, the raised central portion of the first segment strongly transverse. Legs short, the hind femora extending very little beyond the abdomen.

Length 13–13½; breadth of the anterior part of the pronotum 3½–4, of the abdomen 7 millim. (♂ ♀.)

Hab. MEXICO, Presidio de Mazatlan (*Forrer*: ♀), Venta de Peregrino in Guerrero (*H. H. Smith*: ♂), Cuernavaca in Morelos (*Mus. Vind. Cæs.*: ♂[1]).

Allied to *D. crenulatus*, Stål, but differing from it in having the pronotum subparallel at the sides behind the apical lobes, these latter being broader and less divergent than in that species; the head is also more dilated at the sides behind the eyes, and the legs are shorter. The longer antennæ, the longer, spiculiferous process of the head, and the less divergent apical lobes of the pronotum separate it from *D. ampliventris*.

Dr. Bergroth's description [1], made from a single male example with imperfect antennæ, was not seen till after the above was written. The male from Guerrero is figured.

4. **Dysodius ampliventris.** (Tab. VI. fig. 14, ♂.)

Dysodius ampliventris, Bergr. Ent. Tidskr. xv. p. 103 (♀) (1894) [1].

Hab. Panama (*Boucard*).—Amazons, Itaituba [1].

One male example.

CINYPHUS.

Cinyphus, Stål, Hemipt. Afric. iii. p. 31 (1865); Enum. Hemipt. iii. pp. 140, 143.

The three described species of this genus occur within our limits, whence two others are now added. They may be separated thus:—

a. First antennal joint extending to far beyond the apical process of the head, the post-ocular portions of which do not extend outwards beyond the prominent eyes.

a'. Anterior pronotal angles very prominent in front, subacute, coarsely crenate externally; post-ocular portions of the head dilated into a short tooth; venter finely punctured.

a''. Body oblong and widening behind (♂), oblong-ovate (♀); corium rounded at the apex . . . . . *emarginatus*, Stål.

b''. Body elongate-triangular in both sexes; corium obliquely truncate at the apex . . . . . *subtruncatus*, Bergr.

b'. Anterior pronotal angles slightly prominent in front, rounded, obsoletely crenulate externally; post-ocular portions of the head dilated into a short tooth anteriorly, obliquely converging behind; venter coarsely punctured . . . . . *squalidus*, n. sp.

c'. Anterior pronotal angles not prominent in front, obtuse, obsoletely crenulate externally; post-ocular portions of the head subrectangular; venter coarsely punctured . . . . . *lutosus*, n. sp.

b. First antennal joint extending very little beyond the apical process of the head, the post-ocular portions of which are acutely and obliquely dilated, extending outward to beyond the small eyes; anterior pronotal angles projecting forwards, rounded and coarsely crenate externally, and deeply emarginate in front . . . . . *armillatus*, Bergr.

1. **Cinyphus emarginatus.** (Tab. VI. fig. 15, ♂.)

Depodius emarginatus, Stål, Stett. ent. Zeit. 1862, p. 437 (♂ ♀) [1].

Cinyphus emarginatus, Stål, Enum. Hemipt. iii. p. 143 [2].

Hab. Mexico (*Mus. Holm. & coll. Signoret* [1]), Vera Cruz [2] (*Sallé*), Jalapa (*M. Trujillo*: ♀); Guatemala, Cahabon and San Juan in Vera Paz, Zapote (*Champion*: ♂ ♀).

Of this species we have obtained eight examples, one only of which, a female, is from

Mexico; this latter differs from the others, and also from the type (♀), which is now before me, in having the outer apical angles of the connexival segments a little more dilated. The tibiæ are more or less distinctly annulate. We figure a male from Zapote.

2. **Cinyphus subtruncatus.** (Tab. VI. figg. 16, ♂; 17, ♀.)

Cinyphus subtruncatus, Bergr. Bull. Mus. Paris, 1898, no. 3, p. 149[1].

Elongate-triangular, nigro-fuscous or black, the tips of the antennæ and the outer apical angles of the connexival segments ochraceous, the tibiæ usually annulated with ochraceous, the tarsi fuscous or fusco-testaceous, the membrane obscure luteous at the base; the upper surface granulate, the connexival segments simply punctured, and sparsely clothed with very short, decumbent, rusty-brown hairs. Head subquadrate, longer than broad (exclusive of the apical process); the apical process long, unarmed at the sides, terminating in two stout lobes; the antenniferous processes long and stout, spiniform, and slightly divergent; the post-ocular portions dilated into an acute tooth, not extending so far outwards as the eyes, which are rather large and prominent; antennæ moderately elongate, joints 1 and 3 subequal in length, 1 extending to far beyond the apical process of the head, rather stout, asperate, and clothed with short curled hairs, 2 shorter than 3 and a little longer than 4, thickened at the tip. Pronotum transverse, deeply emarginate at the base, the sides constricted at the middle; the anterior portion with two tubercles on the disc; the anterior angles lobiform and extending forwards, concave in front, and rounded and coarsely crenate externally; the posterior portion moderately dilated, the sides crenulate, parallel behind, and rounded or subangularly projecting anteriorly. Corium sinuate externally and deeply arcuate-emarginate within, the apical margin obliquely truncate. Abdomen widening from the base, slightly rounded at the sides before the middle, very broadly and abruptly truncate at the apex; the outer apical angles of segments 1–4 angularly projecting, that of the fifth segment rounded; the sixth segment with a short prominence at about the middle of the apical margin of the connexivum on each side, raised in front of the genital segments in the male and with two short transverse elevations in the centre in the female; the genital lobes short and stout in the female, more slender in the male. Beneath opaque, the ventral segments thickly, finely punctate, each with a small smooth spot in the middle. Legs rather elongate; the femora moderately stout, asperate, and shortly setose.

Length 9–11, breadth 4–5½ millim. (♂ ♀.)

Hab. NICARAGUA, Chontales (*Janson*); PANAMA, Volcan de Chiriqui, Caldera (*Champion*).—VENEZUELA[1].

Found in numbers in Chiriqui, singly at Chontales. Allied to *C. emarginatus*, Stål, but more sharply triangular in shape, this being especially noticeable in the females; it also has the corium more acute at the apex. The anterior angles of the pronotum have from 3–5 blunt teeth on the outer edge; and the posterior lobe is sometimes crenate or subangulate at the sides anteriorly. We figure a pair from Chiriqui.

3. **Cinyphus squalidus,** n. sp. (Tab. VI. fig. 18, ♂.)

♂. Oblong, widening behind, broad, nigro-fuscous, the outer apical angles of the connexival segments ochraceous, the tibiæ and the three outer joints of the antennæ inclining to ferruginous; the surface coarsely granulate, the connexivum coarsely punctured, and somewhat thickly clothed with very short, decumbent, rusty-brown hairs. Head subquadrate; the apical process long and stout, bilobed at the tip, about one-third shorter than the first antennal joint; the antenniferous processes stout, subparallel, terminating in a short blunt spine; the post-ocular portions angular just behind the very prominent eyes and obliquely converging thence to the base; antennæ moderately long, joints 1 and 3 subequal in length, 1 rather stout, hispid, and asperate, 2 a little shorter than 3, and considerably longer than 4, thickened

at the tip. Pronotum transverse, deeply emarginate at the base, the sides constricted at the middle; the anterior portion very broad, about one-fifth narrower than the posterior portion, subparallel, the anterior angles rounded and projecting a little forwards, the disc with two large prominent tubercles; the posterior portion parallel behind, rounded at the sides anteriorly. Corium feebly arcuate-emarginate within, rounded at the apex. Abdomen slightly rounded at the sides, widening from the base; the outer apical angles of segments 1–4 subangularly projecting, the fifth segment nearly parallel, with the apical angle rounded; the sixth segment obliquely converging to the middle, and there armed with a short prominence; the genital lobes moderately stout. Venter coarsely, closely punctate, the segments each with a small smooth spot in the middle.

Length $9\frac{1}{4}$, breadth 4 millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

One specimen. This and the following species have very much the facies of various *Brachyrrhynchi*, but are separable from them by the deeply emarginate base of the pronotum and the two prominent tubercles on the anterior part of its disc.

4. **Cinyphus lutosus,** n. sp. (Tab. VI. fig. 19, ♂.)

♂. Oblong, widening behind, broad, nigro-fuscous, the outer apical angles of the connexival segments ochraceous, the tibiæ and the three outer joints of the antennæ inclining to ferruginous; the surface coarsely granulate, the connexivum diffusely punctured, and sparsely clothed with very short, decumbent, rusty-brown hairs. Head quadrate; the apical process long and stout, about one-third shorter than the first antennal joint, bilobed at the tip, the two lobes connate; the antenniferous processes stout, terminating in a short blunt spine, rounded externally; the post-ocular portions subrectangular, the base of the head appearing broadly truncate; the eyes very prominent; antennæ as in *C. squalidus*. Pronotum transverse, deeply emarginate at the base, the sides constricted at the middle; the anterior portion very broad, about one-fifth narrower than the posterior portion, subparallel, subtruncate in front, the anterior angles obtuse, the disc with two large prominent tubercles; the posterior portion parallel behind, rounded at the sides anteriorly. Corium, abdomen, and legs as in *C. squalidus*; the genital lobes short and stout. Venter coarsely, closely punctate, the segments each with a small smooth spot in the middle.

Length $9\frac{1}{4}$, breadth 4 millim.

Hab. PANAMA, Bugaba (*Champion*).

One specimen. Very closely allied to *C. squalidus*, but apparently distinct from it. It has the head truncate behind, the post-ocular portions being subrectangular; the antenniferous processes rounded externally and terminating in a short blunt spine; the lobes of the apical process of the head connate; and the anterior angles of the pronotum less rounded and not projecting forwards.

5. **Cinyphus armillatus.** (Tab. VI. fig. 20, ♀.)

Cinyphus armillatus, Bergr. Wien. ent. Zeit. xiv. p. 167 (♂ ♀) (1895)[1].

Hab. CENTRAL AMERICA (*Mus. Vind. Cæs.*[1], *ex coll. Signoret*).—COLOMBIA (*Mus. Paris, fide Bergroth*).

Dr. Bergroth has kindly forwarded a female of this species for examination. The locality "Central America" requires confirmation, as we have not obtained specimens of it from our region. The types were probably from Venezuela.

ILLIBIUS.

Illibius, Stål, Enum. Hemipt. iii. pp. 140, 143 (1873).

1. **Illibius laticeps.** (Tab. VI. fig. 21, ♀.)

Illibius laticeps, Stål, Enum. Hemipt. iii. p. 143 (♂)[1].

Hab. Panama, Bugaba (*Champion*).—Colombia, Bogota[1].

Of this species, the only known member of the genus, two female specimens were obtained by myself in Chiriqui. The term "lævis" is misleading in the description, and applies only to the scattered glabrous portions of the very uneven surface, which is in great part covered by short, matted, decumbent, rusty-brown hairs, as well as by fine scattered erect hairs (which extend to all the joints of the antennæ, as well as to the legs), these latter not being mentioned by Stål. The type has been communicated by Dr. Aurivillius.

LOBOCARA.

Lobocara, Bergroth, Rev. d'Ent. xi. p. 259 (1892).

Two species are referred to this genus by Dr. Bergroth, *L. oblonga* from the Argentine Republic and *L. ovata* from Mexico. The latter is widely distributed in Central America, extending southwards to Nicaragua.

1. **Lobocara ovata.** (Tab. VI. fig. 22, ♀.)

Lobocara ovata, Bergr. Rev. d'Ent. xi. p. 260 (♂)[1].

Hab. Mexico, Vera Cruz (*Mus. Holm.*[1]); British Honduras, R. Sarstoon (*Blancaneaux*); Guatemala, Panzos, Cahabon, El Tumbador, Zapote (*Champion*); Nigaragua, Chontales (*Janson*).

Of this species we have obtained four males and four females. Dr. Bergroth's type has been seen. A specimen from Panzos is figured.

BRACHYRRHYNCHUS.

Brachyrhynchus, Laporte, Essai Class. Syst. Hémipt., in Guérin's Mag. Zool. 1832, p. 54; Stål, Enum. Hemipt. iii. pp. 140, 143; Bergroth, Wein. ent. Zeit. iv. p. 181 (1885).
Mezira, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 305 (1843).
Arictus, Stål, Hemipt. Afric. iii. p. 31 (1865); Enum. Hemipt. iii. p. 144.
Dusius, Bergroth, Ent. Tidskr. xv. p. 104 (1894).

Of the forty-eight species of this widely distributed genus enumerated by Lethierry and Severin, fourteen are American, two only being from within our limits. *Brachyrrhynchus*, however, proves to be well represented in Central America, nineteen species being known to me, fourteen of which are described as new. They have the pronotum (except in *B. abdominalis*) very feebly emarginate at the base, the third antennal joint

more or less elongate, and the corium extending to about as far as the middle of the second segment, it being sometimes emarginate within (*B. handlirschi*). The apical joint of the antennæ is piriform (*B. læviventris*), ovate (*B. maculiventris*), or oblong-ovate (*B. emarginatus*), sometimes longer than the second (*B. nanus*). The rostrum is short, but in two of the new species described (*B. læviventris* and *B. sinuatus*) it reaches the front of the prosternum; the rostral groove is sometimes narrowed and closed behind (*B. handlirschi*). The spiracles vary a little in position according to the species, irrespective of the width of the connexivum.

The Central-American species may be tabulated thus:—

a. Pronotum rather deeply emarginate at the base, the anterior lobe with two yellowish tubercles in the middle behind; scutellum with a yellowish tubercle at each basal angle; antennæ comparatively slender, with a piriform apical joint; rostrum not extending beyond the base of the head . . . . . *abdominalis*, Stål.

b. Pronotum feebly emarginate at the base, the anterior lobe and scutellum without yellowish tubercles.

a'. Antennæ moderately long, comparatively slender, usually with a more or less piriform apical joint (ovate in *B. maculiventris*).

a''. Rostrum reaching the front of the prosternum.

a'''. Corium emarginate within; venter smooth and shining . . . *læviventris*, n. sp.

b'''. Corium unemarginate within; venter dull and rugulose . . . *sinuatus*, n. sp.

b''. Rostrum shorter, not extending beyond the base of the head.

c'''. Body incrustate above and beneath, subglabrous; corium emarginate within; antenniferous processes abbreviated in front . . . . . *handlirschi*, Bergr.

d'''. Body incrustate beneath, clothed with very short hairs above; corium unemarginate within . . . . . *lobatus*, Say.

e'''. Body not (or at most here and there beneath) incrustate; corium unemarginate within.

*a*⁴. Body, antennæ, and legs clothed with rather long and very fine projecting hairs . . . . . *longipilis*, n. sp.

*b*⁴. Body clothed with very short, curled, decumbent hairs (sometimes very minute or abraded); legs and antennæ shortly or indistinctly pubescent *.

*a*⁵. Pronotum strongly constricted at the sides, the anterior lobes projecting in front.

*a*⁶. Posterior portion of the pronotum subangularly dilated at the sides anteriorly; connexivum spotted . . . . . *maculiventris*, n. sp.

*b*⁶. Posterior portion of the pronotum rounded at the sides anteriorly; connexivum not spotted . . . . . *constrictus*, n. sp.

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* *B. punctiventris*, Stål, *B. granuliger*, Stål, *B. granulatus* (Say), and *B. obscurus* (Dist.) belong to this section.

b^5. Pronotum constricted or moderately sinuate at the sides, the anterior lobes not or very slightly projecting in front.

c^6. The spiniform antenniferous processes long or moderately long.

a^7. Post-ocular spines long and acute, extending to beyond the eyes; apical process broad; connexivum (♂) rounded at the sides posteriorly; terminal genital segment (♂) transversely cordate . . . . . *regularis*, n. sp.

b^7. Post-ocular spines acute, extending about as far as the eyes; connexivum (♂) obliquely narrowed posteriorly; terminal genital segment (♂) cordate.

a^8. Femora coarsely asperate; body moderately broad . *neotropicalis*, n. sp.

b^8. Femora finely asperate; body narrow . . . . . *angustatus*, n. sp.

c^7. Post-ocular spines very short and inconspicuous; body broad, ovate . . . . . *latus*, n. sp.

d^6. The spiniform antenniferous processes short; post-ocular spines extending as far as the eyes . . . . . *rugiventris*, n. sp.

c^5. Pronotum feebly sinuate at the sides, the anterior lobes very slightly projecting in front . . . . . *mœstus*, Stål.

b'. Antennæ relatively shorter, with joints 2–4 of more uniform thickness, 4 ovate or oblong-ovate; rostrum short. Body not or very slightly incrustate, above clothed with very short curled hairs (sometimes very minute or abraded).

c''. Corium obliquely truncate at the apex; pronotum feebly sinuate at the sides and deeply emarginate in front; terminal genital segment (♂) transverse . . . . . *emarginatus*, Say.

d''. Corium more or less rounded at the apex.

f'''. Pronotum with the anterior and posterior portions not separated by a distinct groove.

c^4. The spiniform antenniferous processes long and acute; antennæ with joints 2 and 4 subequal in length.

d^5. Post-ocular spines long, slender, and acute: length of the body over 8 millim. . . . . *rugicornis*, n. sp.

e^5. Post-ocular spines shorter and stouter: length of the body $4\frac{3}{4}$ millim. . . . . *yucatanus*, n. sp.

d^4. The spiniform antenniferous processes short; pronotum flattened, feebly sinuate at the sides; antennæ with joint 2 shorter than 4: length of the body 4 millim. . . . . *nanus*, n. sp.

g'''. Pronotum with the anterior and posterior portions separated by a deep transverse groove; the lateral constriction deep . *divisus*, n. sp.

1. **Brachyrrhynchus abdominalis.** (Tab. VI. fig. 23, ♀.)

Brachyrhynchus abdominalis, Stål, Enum. Hemipt. iii. p. 144 (♂)[1]; Bergr. Verh. zool.-bot. Ges. Wien, xxxvi. p. 59[2].

♀. Ovate, broad, nigro-piceous, the connexivum above and beneath mottled with ferruginous, the venter obscure ferruginous, the apices of the connexival segments above and beneath more or less ochraceous, the tips of the antennæ, the tarsi, and the tubercles on the head, pronotum, and scutellum ochraceo-ferruginous; the membrane nigro-fuscous, with two obscure luteous spots at the base; the upper surface rather coarsely granulate, and sparsely clothed with very short, minute hairs, the head with numerous tubercles along the middle, the anterior portion of the pronotum with several tubercles arranged in four longitudinal rows on the disc (the inner basal two conspicuous), and the scutellum with a tubercle on each side in front. Head subquadrate; the apical process moderately long, finely denticulate at the sides, and unemarginate at the tip, extending to near the apex of the first antennal joint; the spiniform antenniferous processes long, acute, and slightly divergent; the post-ocular portions broad, rounded behind, and armed with a short, oblique tooth, which projects slightly beyond the eyes; antennæ slender, with a stouter basal joint, joints 1–3 increasing in length, 4 shorter than 1, piriform, pilose at the tip. Pronotum rather deeply emarginate at the base, and strongly constricted at the sides; the anterior portion dilated on each side laterally and anteriorly into a short, broad lobe, which is rounded externally, and is obliquely truncate in front; the posterior portion very much wider, and rounded at the sides; the margins rather coarsely crenulate. Corium rounded at the apex. Connexivum very broad, rounded externally, the margin finely crenulate, the fifth and sixth segments obliquely narrowing; the sixth segment rather deeply arcuate-emarginate at the apex, with the apical angles somewhat broadly produced and forming two short blunt prominences. The first genital segment produced into a short lobe on each side behind. Beneath rugose and granulate, the ventral segments 1–4 each with a smooth, posteriorly widening spot in the centre. Rostrum not extending beyond the base of the head, the groove very broad and open behind. Femora roughly granulate.

Length 10, breadth 5 millim.

Hab. Mexico (*Sallé, in Mus. Paris*).—Antilles, Cuba [1], Puerto Rico [2].

Differs from all the other Central-American species of the genus in the rather deeply emarginate base of the pronotum, the broadly lobate anterior angles of which are obliquely truncate in front, and in having conspicuous pallid tubercles at the basal angles of the scutellum and on the disc of the anterior lobe of the pronotum behind. The description is taken from a Mexican specimen communicated by Dr. Bergroth. *B. abdominalis*, Stål, the type of which I have seen, is allied to *B. bouvieri*, Bergr., from Colombia.

2. **Brachyrrhynchus læviventris,** n. sp. (Tab. VI. figg. 24, 25, ♀.)

♀. Oblong, broad, black or piceous, the base and apex of the antennæ and the tarsi usually more or less ferruginous, the tibiæ also sometimes inclining to ferruginous; the upper surface granulate, and somewhat thickly clothed with very short, curled, rusty-brown hairs, these being matted together on the depressed parts; the antennæ and legs finely pilose. Head (exclusive of the apical process) transverse; the apical process long, broad, convex, extending to the apex of the first antennal joint, not or feebly emarginate at the tip; the spiniform antenniferous processes stout, rather short, subparallel; the post-ocular portions armed with a short tooth, and obliquely converging thence to the base; antennæ slender, moderately long, joints 1 and 2 subequal in length, 3 much longer than 2, 4 a little shorter than 2, piriform, with the base slender. Pronotum feebly emarginate at the base, constricted at the sides; the anterior portion dilated on each side laterally and anteriorly into a broadly rounded lobe, the two inner callosities somewhat prominent; the posterior portion about one-fifth wider than the anterior portion,

the sides rounded anteriorly and parallel behind; the margins crenulate. Scutellum transversely rugose, raised along the middle, and with a small tubercle on each side in front. Corium slightly emarginate on the inner side, rounded at the apex. Membrane with irregularly anastomosing nervures. Connexivum moderately broad, narrowing from the base of the fifth segment; the sixth segment transversely swollen in the middle, abruptly narrowed, feebly emarginate at the apex, leaving the first genital segment narrowly exposed, the latter with two short lobes. Beneath, the sides and genital segments excepted, smooth and shining, the ventral segments each with a row of granules along the anterior margin, the venter moderately convex. Rostrum reaching the front of the prosternum.

Length $8\frac{2}{5}$–9, breadth $3\frac{1}{4}$–$3\frac{7}{8}$ millim.

Hab. PANAMA, Volcan de Chiriqui 3000 feet (*Champion*).

Five examples. The smooth, shining under surface, the sides and genital segments excepted, separates this species at once from its allies. The membrane is black.

3. **Brachyrrhynchus sinuatus,** n. sp. (Tab. VI. fig. 26, ♀.)

♀. Oblong-ovate, broad, nigro-piceous, the apical half of the terminal joint of the antennæ and the coxæ ochraceous, the basal half of the pronotum fusco-ferruginous, the tarsi and the smooth callosities on the abdomen ferruginous; the membrane fuscous; the upper surface granulate, the connexivum finely punctate, and sparsely clothed with short, curled, rusty-brown hairs; the under surface rugulose and very sparsely pubescent, the ventral segments each with a small, smooth, dull spot in the middle; the abdomen above and beneath with scattered irregular series of smooth shining callosities. Head (exclusive of the apical process) transverse, somewhat rounded at the base, armed with a short tooth on each side behind the eyes; the apical process subconical, nearly reaching the apex of the first antennal joint, slightly emarginate at the tip; the spiniform antenniferous processes short, stout, divergent; antennæ slender, joint 2 a little shorter than 1, 3 one-half longer than 2 and a little longer than 1, 4 slightly longer than 2, stout and piriform. Pronotum feebly emarginate at the base, strongly sinuate at the sides, and emarginate in front; the anterior portion dilated on each side into a broadly rounded, raised, anteriorly projecting lobe, the two inner callosities each with a short ridge; the posterior portion much wider than the anterior portion, rounded at the sides anteriorly and subparallel behind. Scutellum transversely wrinkled. Corium rounded at the apex. Connexivum broad, narrowing from the base of the fifth segment; the sixth segment hollowed at the sides anteriorly, broadly and shallowly emarginate at the apex, leaving the first genital segment narrowly exposed, the latter with two broad, rounded, prominent lobes. Venter somewhat convex. Rostrum reaching the front of the prosternum. Femora asperate.

Length 9, breadth $4\frac{1}{4}$ millim.

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

One specimen. Easily separable from its allies by the distinctly sinuate sides of the sixth connexival segment, and the conspicuous irregular series of smooth, ferruginous, shining callosities on the upper and under sides of the abdomen.

4. **Brachyrrhynchus handlirschi.** (Tab. VI. fig. 27, ♂.)

Brachyrrhynchus handlirschi, Bergr. Bull. Mus. Paris, 1898, no. 3, p. 150 (♂ ♀)[1].

Oblong-ovate, broad, subglabrous, fuscous or ferrugineo-fuscous; almost covered above and beneath, the corium excepted, with a thin ochraceous or greyish-ochraceous incrustation, the connexivum and the exposed sides of the abdominal dorsum spotted with black or fuscous; the membrane lurid, with fuscous nervures; the legs and antennæ finely pubescent. Head subquadrate, granulate along the middle, transversely wrinkled at the sides; the apical process broad, reaching the middle of the first antennal joint, feebly bilobed at the tip; the antenniferous processes stout, terminating in a very short spine in front, subparallel; the post-ocular portions short, dilated laterally into a short spine; antennæ rather

slender, with a stout basal joint, joints 1 and 3 subequal in length, 2 much longer than 4, 4 about half the length of 3, piriform. Pronotum feebly emarginate at the base, the lower anterior angles somewhat prominent, the surface coarsely, irregularly granulate, transversely wrinkled at the sides; the anterior portion subparallel, feebly emarginate or subtruncate in front, the anterior angles more or less rounded, the two inner callosities rather prominent; the posterior portion much wider than the anterior portion, rounded at the sides anteriorly and parallel behind, the margins crenate. Scutellum transversely wrinkled. Corium arcuate-emarginate within, obliquely truncate at the apex, the nervures and hind margin granulate. Connexivum broad, very finely punctured, narrowing from the base of the fifth segment; the sixth segment in the female transversely raised before the apex, which is broadly emarginate, leaving the first genital segment narrowly exposed, the latter with two short lobes. The genital lobes short in the male. The under surface closely, finely punctate (rugulose beneath the incrustation); the venter somewhat convex, the segments each with a small, oval, depressed spot in the centre. Rostrum not extending beyond the base of the head, the groove narrowing and closed behind.

Length 9–10$\frac{1}{4}$, breadth 3$\frac{1}{2}$–3$\frac{2}{3}$ millim. (♂ ♀.)

Hab. PANAMA, Bugaba, Volcan de Chiriqui (*Champion*), Paya, Isthmus of Darien [1].—GUIANA, Cayenne [1]; BRAZIL [1].

One male and four females were obtained in Chiriqui. Differs from all the other Central-American species in the almost glabrous body, the surface above (the corium excepted) and beneath almost covered by a thin greyish-ochraceous incrustation. It approaches *Cinyphus*, but has the pronotum less deeply emarginate at the base.

5. **Brachyrrhynchus lobatus.** (Tab. VI. fig. 28, ♀.)

Aradus lobatus, Say, Descr. of New Species of Hemipt. Heteropt. of N. Am. (New Harmony, Dec. 1831) [1]; Complete Writings, i. p. 354 [2].

Brachyrhynchus lobatus, Stål, Enum. Hemipt. iii. p. 145 [3]; Bergr. Proc. Ent. Soc. Wash. ii. p. 336 (nec Germ.) [4].

♀. Oblong-ovate, broad, pitchy-black or nigro-piceous, the base and apex of the antennæ and the tarsi ferruginous; the membrane lurid, with the nervures fuscous; the upper surface granulate, the connexivum rugulosely punctured, and somewhat thickly clothed with short, curled, decumbent, rusty-brown hairs, these being conspicuous along the apical margins of the connexival segments and on a series of semicircular elevations extending along each side of the dorsum of the abdomen; the under surface in great part covered by a thin pallid ochraceous incrustation, the sides with a few very short curled hairs. Head subquadrate; the apical process broad, about reaching the middle of the first antennal joint, unemarginate at the tip; the antenniferous processes stout, terminating in a short spine in front, slightly divergent; the post-ocular portions short, and dilated laterally into a short spine; antennæ rather slender, with a stout basal joint, joint 2 a little shorter than 1, 3 considerably longer than 1 and nearly twice as long as 4, the latter piriform. Pronotum feebly emarginate at the base, constricted at the sides, the margins crenulate; the anterior portion rounded at the sides, the callosities each with a short longitudinal ridge; the posterior portion much wider, with the sides rounded anteriorly and subparallel behind. Scutellum transversely wrinkled, slightly raised along the middle, and with a flattened tubercle at the base on each side. Corium rounded at the apex. Connexivum broad, narrowing from the base of the fifth segment; the sixth segment abruptly narrowed, feebly emarginate behind, leaving the first genital segment narrowly exposed, the latter with two short lobes. Venter feebly convex, sparsely and rather finely punctured, the segments 1–5 each with an oblong smooth spot in the middle.

Length 9$\frac{1}{4}$–9$\frac{1}{2}$, breadth 4$\frac{1}{10}$ millim.

Hab. NORTH AMERICA, Canada to California [4], Indiana [1 2], Texas [3 4] (*Belfrage, in Mus. Holm.*).—GUATEMALA, Zapote (*Champion*); PANAMA, Bugaba (*Champion*).

Two females, agreeing well with a specimen of the same sex from Texas (now before me), determined by Stål as *B. lobatus* (Say). As there is considerable doubt about the determination of many of Say's species, a fresh description is given from the Central-American examples. This species resembles *B. læviventris*, but has the venter punctured and coated, like the rest of the under surface, with a pallid incrustation (a character not mentioned by Say); the head has short apical and antenniferous processes, the anterior portion of the pronotum is less dilated and not reflexed at the sides, the basal joint of the antennæ is stouter, the membrane paler, &c.

6. **Brachyrrhynchus longipilis,** n. sp. (Tab. VI. figg. 29, ♂; 29 *a*, antenna.)

Ovate, rather broad, nigro-piceous or black, the membrane obscure luteous round the apex of the corium; the upper surface granulate, the connexivum very finely rugulose, and sparsely clothed with very fine hairs, these being erect or suberect on the head and pronotum; the antennæ and legs also with rather long, fine, projecting hairs. Head (exclusive of the apical process) transverse, somewhat rounded at the base; the apical process reaching to a little beyond the middle of the first antennal joint, emarginate at the tip; the spiniform antenniferous processes acute, divergent; the post-ocular portions dilated laterally into an acute spine, which extends outwards to about as far as the eyes; antennæ rather slender, with a stouter basal joint, joints 2 and 4 subequal in length, 3 longer than 1, 4 piriform. Pronotum feebly emarginate at the base, moderately sinuate at the sides, the margins crenulate; the anterior portion slightly dilated and broadly rounded at the sides, the callosities not prominent; the posterior portion much broader, rounded at the sides anteriorly and subparallel behind. Corium rounded at the apex. Connexivum broad—in the female somewhat rounded at the sides posteriorly, with the sixth segment emarginate at the apex, leaving the first genital segment rather broadly exposed, the latter with two prominent rounded lobes; in the male with the fifth and sixth segments obliquely narrowing, the latter produced into an obtuse lobe behind. Terminal genital segment of the male cordate; the lobes of the first genital segment long. Beneath dull and finely rugulose; the venter somewhat flattened, the segments each with a smooth spot in the middle. Femora asperate.

Length $7\frac{1}{2}$–8, breadth $3\frac{1}{4}$–$3\frac{1}{2}$ millim. (♂ ♀.)

Hab. MEXICO, Xucumanatlan and Omilteme in Guerrero, 7000 to 8000 feet (*H. H. Smith*).

One male and three females. Very like *B. neotropicalis*, but more ovate in both sexes, the hairs on the upper surface, antennæ, and legs longer, finer, and erect, the connexivum finely rugulose. The comparatively long and very fine hairs are particularly noticeable on the head, antennæ, and legs, this character separating the species from all the other Central-American members of the genus. The insect is unknown to Dr. Bergroth.

7. **Brachyrrhynchus maculiventris,** n. sp. (Tab. VII. figg. 1, ♀; 1 *a*, antenna.)

Oblong-ovate, moderately broad, nigro-piceous or ferrugineo-fuscous, the tips of the antennæ, the coxæ, and tarsi ferruginous, the connexivum and venter much spotted with ochraceous or ferruginous, the membrane lurid, with blackish nervures; the upper surface finely granulate, the connexivum finely punctured and with smooth rounded spots, the elevated portions clothed with extremely short rusty-brown hairs; the antennæ and legs shortly pubescent. Head subquadrate; the apical process reaching to the middle of the first antennal joint, emarginate at the tip; the spiniform antenniferous processes acute, divergent; the

post-ocular portions dilated laterally into a short spine and obliquely converging thence to the base; antennæ rather slender, joint 2 a little shorter than 1, 3 nearly one-half longer than 2 and longer than 1, 4 slightly shorter than 2, ovate. Pronotum feebly emarginate at the base, strongly constricted at the sides; the anterior portion dilated on each side anteriorly into a broadly rounded lobe, which is subangular in front, the callosities each with a short indistinct ridge; the posterior portion much broader than the anterior portion, with the sides subangularly dilated anteriorly, rounded in front, and subparallel and crenulate behind. Scutellum transversely rugose and with an indistinct median ridge. Corium rounded at the apex. Connexivum broad, gradually narrowing from the base of the fifth segment; the sixth segment rounded at the sides in both sexes—in the female arcuate-emarginate at the apex, leaving the first genital segment rather broadly exposed, the latter with two broad, rounded, prominent lobes. Terminal genital segment of the male large, cordate; the lobes of the first genital segment long and narrow. Beneath rugulose, the venter and connexivum with rows of smooth callosities, the venter flattened and with a row of small, oval, smooth, depressed spots down the middle.

Length 7–7¾, breadth 2¾–3¼ millim. (♂ ♀.)

Hab. GUATEMALA, Purula in Vera Paz, Capetillo (*Champion*).

A female from Purula and a male from Capetillo, the latter unfortunately having the head broken off. Differs from the allied forms in the shape of the pronotum, the spotted connexivum (resembling that of some species of *Hesus*), &c.

8. **Brachyrrhynchus constrictus,** n. sp. (Tab. VII. fig. 2, ♀.)

Oblong, broad, nigro-piceous above, black beneath, the tarsi obscure testaceous, the membrane fuscous; the upper surface conspicuously granulate, the bare spaces on the connexivum almost smooth, and clothed with short, curled, rusty-brown hairs; the legs and antennæ shortly pubescent. Head (exclusive of the apical process) transverse, somewhat rounded at the base; the apical process about reaching the middle of the first antennal joint, slightly emarginate at the tip; the spiniform antenniferous processes divergent, rather short; the post-ocular portions dilated laterally into an acute spine, which extends to a little beyond the eyes, obliquely converging behind; antennæ slender, with a stouter basal joint, joint 2 shorter than 1 and slightly longer than 4, 3 longer than 1, 4 piriform. Pronotum feebly emarginate at the base, strongly constricted at the sides, and emarginate in front, the margins crenulate; the anterior portion dilated on each side into a raised, broadly rounded, anteriorly projecting lobe, the two inner callosities with indications of a short ridge; the posterior portion much wider, rounded at the sides anteriorly and parallel behind. Scutellum conspicuously granulate. Corium narrowly rounded at the tip, obliquely truncate within. Connexivum broad, with the outer apical angles of the segments slightly projecting, obliquely narrowing from the base of the fifth segment; the sixth segment subangularly produced at the apex in the male, obtuse in the female. First genital segment narrowly exposed in the female, with two short rounded lobes. Terminal genital segment of the male cordate; the lobes of the first genital segment long and narrow. Venter somewhat convex, with irregular smooth shining spaces, the intervening parts dull, sparsely granulate, and with the depressions here and there covered by an ochraceous incrustation, the segments 1–5 each with a smooth opaque spot in the middle behind.

Length 6⅓–7¾, breadth 2¾–3½ millim. (♂ ♀.)

Hab. GUATEMALA, Cerro Zunil (*Champion*).

One pair. Distinguishable by the raised and broadly, arcuately dilated sides of the anterior portion of the pronotum, the median constriction appearing deeper than in any of the other species of the genus here described. The obliquely truncate inner margin of the corium will separate it from *B. lobatus*, apart from other characters. *B. obscurus* (Dist.), from Ecuador, is an allied form, but has a more transverse, smoother pronotum, &c.

9. **Brachyrrhynchus regularis,** n. sp. (Tab. VII. fig. 3, ♂.)

Oblong-ovate, rather broad, fuscous, the antennæ and tarsi obscure ferruginous, the outer apical angles of the connexival segments ochraceous, the membrane lurid, with dark nervures; the upper surface rather finely granulate and clothed with a few extremely short, curled, ochraceous hairs. Head (exclusive of the apical process) transverse; the apical process broad, extending to a little beyond the middle of the first antennal joint, slightly emarginate at the tip; the spiniform antenniferous processes acute, divergent; the post-ocular portions dilated laterally into a long acute spine, which extends to considerably beyond the eyes: antennæ rather slender, joints 2 and 4 subequal in length, 2 a little shorter than 1, 3 nearly one-half longer than 2 and much longer than 1, 4 subpiriform. Pronotum feebly emarginate at the base, moderately sinuate at the sides, the margins very distinctly crenulate; the anterior portion dilated on each side anteriorly into a broad rounded lobe, the callosities each with a short ridge; the posterior portion much wider than the anterior portion, rounded at the sides anteriorly and parallel behind. Scutellum with a median ridge and also raised on each side in front. Corium narrowly rounded at the tip. Connexivum moderately broad, rounded and gradually narrowing from the base of the fifth segment, the margins uninterrupted and minutely crenulate. Terminal genital segment of the male large, very broad, transversely cordate; the lobes of the first genital segment stout and rather short. Terminal genital segment of the female truncate at the apex; the lobes of the first genital segment short. Beneath rugulose; the venter somewhat convex, the segments each with a smooth spot in the middle.

Length 7–7$\frac{1}{5}$, breadth 3 millim. (♂ ♀.)

Hab. Guatemala, El Tumbador 2500 feet (*Champion*: ♂); Costa Rica, Turrialba (*Biolley*: ♀).

Two males from the Pacific slope of Guatemala, and a single female from Costa Rica, the latter communicated by Dr. Bergroth. Distinguishable by the very long post-ocular spines, in connection with the moderately sinuate and rather coarsely crenulate sides of the pronotum, the evenly rounded sides of the connexivum towards the apex in the male, and the very broad terminal genital segment in this sex. It approaches *B. granuliger*, Stål, from Brazil, the type (♂) of which is before me, but differs from that species in the evenly rounded sides of the connexivum, the less coarsely granulate upper surface, the short genital lobes, &c.

10. **Brachyrrhynchus neotropicalis,** n. sp. (Tab. VII. fig. 4, ♂.)

Oblong-ovate (♀), slightly widened behind (♂), rather broad, varying in colour from black with the connexivum piceous to almost entirely fusco-ferruginous; the membrane blackish or fuscous, more or less marked with obscure luteous round the apex of the corium; the upper surface granulate, the connexivum comparatively smooth, and clothed with scattered, very short, curled, rusty-brown hairs; the legs and antennæ shortly pubescent. Head (exclusive of the apical process) transverse, somewhat rounded at the base; the apical process reaching to a little beyond the middle of the first antennal joint, rounded and sometimes slightly emarginate at the tip; the spiniform antenniferous processes acute, divergent; the post-ocular portions dilated laterally into an acute spine, which usually extends outwards as far as or to a little beyond the eyes; antennæ rather slender, with joint 1 stouter, 2 a little shorter than 1 and slightly longer than 4, 3 much longer than 1 and nearly twice as long as 4, 4 piriform. Pronotum feebly emarginate at the base, strongly sinuate at the sides, the margins serrulate or crenulate; the anterior portion dilated on each side into a broadly rounded lobe, the callosities each with indications of a short ridge; the posterior portion much broader, rounded at the sides anteriorly and subparallel behind. Scutellum sparsely granulate and with an indistinct median ridge. Corium more or less rounded at the apex. Connexivum broad—in the female feebly rounded posteriorly, with the sixth segment sometimes slightly hollowed at the sides and emarginate at the apex, leaving the first genital segment rather broadly exposed, the latter with two broad, rounded, prominent lobes; in the male with the fifth segment

subparallel and the sixth obliquely narrowing, the latter produced into an obtuse lobe behind. Terminal genital segment of the male transversely cordate; the lobes of the first genital segment long. Beneath (the genital segments excepted) finely and shallowly rugulose, dull, the venter flattened, the segments each with a small smooth spot in the middle. Femora coarsely asperate.

Length $6\frac{1}{4}$–$8\frac{1}{2}$, breadth $2\frac{1}{2}$–$3\frac{1}{2}$ millim. (♂ ♀.)

Hab. MEXICO (*Mus. Vind. Cæs.*: ♀), Misantla (*F. D. Godman*: ♀); GUATEMALA, San Joaquin in Vera Paz, Dueñas (*Champion*: ♂ ♀).

Var. The elevations of the upper surface somewhat thickly clothed with rusty-brown or fulvous hairs; the membrane entirely black.

Hab. GUATEMALA, San Juan and Tamahu in Vera Paz (*Champion*: ♀).

Seventeen specimens, four of which belong to the variety, the more numerous hairs on these examples being perhaps due to their fresher condition. The description is mainly taken from Guatemalan specimens, three only having been seen from Mexico. This variable species is nearly allied to *B. mœstus* (Stål), the type of which is before me; but differs from it in the relatively less elongate and more ovate shape, the more deeply sinuate sides of the pronotum, the more flattened venter, the smoother connexivum, and the more asperate femora. Fresh specimens have four short distinct ridges on the anterior part of the pronotum and three lines on the scutellum, formed in part by the short curled hairs. The single (♀) example belonging to the Vienna Museum is labelled *B. americanus*, Spin.; but I cannot accept this determination as correct, the male of the present insect not agreeing with Spinola's figure (♂), and *B. americanus*, moreover, is a Chilian species. We figure a male from San Joaquin.

11. **Brachyrrhynchus angustatus,** n. sp. (Tab. VII. fig. 6, ♀.)

Oblong-ovate, narrow, nigro-piceous or black, the connexivum sometimes inclining to ferruginous, the membrane blackish; the upper surface granulate, the connexivum rather smooth, and clothed with extremely short, curled, rusty-brown or fuscous hairs; the legs and antennæ shortly pubescent. Head (exclusive of the apical process) transverse, somewhat rounded at the base; the apical process reaching to a little beyond the middle of the first antennal joint, feebly emarginate at the tip; the spiniform antenniferous processes acute, divergent; the post-ocular portions dilated laterally into an acute spine, which extends outwards as far as the eyes; antennæ rather slender, with a stouter basal joint, joints 2 and 4 subequal in length, 3 much longer than 1, 4 piriform. Pronotum feebly emarginate at the base, constricted at the sides, the margins crenulate; the anterior portion dilated on each side into a slightly raised, rounded lobe, the callosities each with a short ridge; the posterior portion very much wider, rounded at the sides anteriorly and subparallel behind. Scutellum with a median ridge. Corium obtuse at the apex, subobliquely truncate within. Connexivum comparatively narrow, gradually narrowing from the base of the fifth segment in both sexes, the sixth obtusely produced at the apical angle in the male. First genital segment broadly exposed in the female, with two rounded lobes. Terminal genital segment of the male cordate; the lobes of the first genital segment long. Beneath rugulose, dull; the venter flattened, the segments each with a smooth oblong spot in the middle. Femora finely asperate.

Length 5–$6\frac{1}{10}$, breadth 2–$2\frac{1}{2}$ millim. (♂ ♀.)

Hab. PANAMA, Volcan de Chiriqui 3000 feet (*Champion*).

Six females and two males. Very like *B. neotropicalis*; but narrower and considerably smaller, with the pronotum strongly constricted at the sides and its anterior portion relatively narrower, the femora smoother, the corium less rounded at the apex.

The form of the pronotum approaches that of *B. læviventris* and *B. constrictus*, except that the rounded anterior lobes are not dilated forwards. The insect is unknown to Dr. Bergroth.

12. **Brachyrrhynchus latus,** n. sp.

♀. Ovate, broad, nigro-piceous, the tips of the antennæ and the tarsi ferruginous, the membrane fuscous, with two obscure luteous marks at the base; the upper surface granulate, the connexivum rugulose, and clothed with excessively short, scattered, ochraceous hairs; the antennæ (the tip excepted), femora, and tibiæ conspicuously granulate and very finely pubescent. Head subquadrate; the apical process stout, slightly narrowed behind, extending to the middle of the first antennal joint, unemarginate at the tip; the antenniferous processes broad, subparallel, terminating in an acute, short spine in front; the post-ocular portions short, armed with a very short spine; the eyes comparatively large; antennæ rather slender, with a stout basal joint, joint 3 slightly longer than 1, 4 nearly as long as 2, piriform. Pronotum feebly emarginate at the base, deeply sinuate at the sides; the anterior portion dilated laterally into a broadly rounded, slightly raised lobe, the callosities each with a short somewhat prominent ridge; the posterior portion much wider, rounded at the sides anteriorly and subparallel behind, the margins crenulate. Scutellum transversely wrinkled, and with a median ridge. Corium with the apical margin slightly rounded. Connexivum very broad, rounded at the sides, the sixth segment feebly emarginate behind, leaving the first genital segment narrowly exposed, the latter with two rounded lobes. Beneath rugose, dull; the venter somewhat flattened, the segments each with a small smooth spot in the middle.

Length 9, breadth 4 millim.

Hab. GUATEMALA, Chacoj in Vera Paz (*Champion*).

One example, from the Polochic valley. Distinguishable from all the other Central-American species by its broad, ovate shape. The head is formed as in *B. lobatus*, except that the apical process is not so wide. The sixth connexival segment is less deeply emarginate at the apex than in the females of *B. neotropicalis*, *B. longipilis*, &c., and the exposed portion of the first genital segment is narrower.

13. **Brachyrrhynchus rugiventris,** n. sp.

♂. Oblong, broad, pitchy-black, the venter, legs, and antennæ piceous, the tarsi ferruginous, the membrane black; the upper surface granulate, the connexivum rugulose, and clothed with extremely short rusty-brown hairs; the legs and antennæ finely pubescent. Head (exclusive of the apical process) transverse, somewhat rounded behind; the apical process stout, convex, extending to near the apex of the first antennal joint, slightly notched at the tip; the spiniform antenniferous processes acute, short; the post-ocular portions rather broad, dilated laterally into an acute spine, which extends outwards as far as the eyes; antennæ with joint 1 short and moderately stout, 2 shorter and more slender (3 and 4 broken off). Pronotum feebly emarginate at the base, strongly constricted at the sides, the margins crenulate; the anterior portion rounded at the sides and with four short ridges on the disc; the posterior portion very much wider, rounded at the sides anteriorly and subparallel behind. Scutellum with an indistinct median ridge. Corium rounded at the apex. Connexivum gradually and obliquely narrowing from the base of the fifth segment; the sixth segment rapidly and obliquely narrowed, with the apical angles produced into a short rounded lobe. Terminal genital segment cordate; the lobes of the first genital segment moderately long. Beneath rugose, dull; the venter somewhat convex, the segments each with a smooth spot in the middle.

Length $6\frac{3}{4}$, breadth $2\frac{1}{3}$ millim.

Hab. GUATEMALA, Cerro Zunil 4000 feet (*Champion*).

One specimen. In its somewhat parallel shape this insect resembles the males of

B. constrictus, *B. regularis*, *B. angustatus*, &c., but differs from all of them in the short (but acute) antenniferous processes, as well as in other particulars. *B. rugiventris* is nearest allied to *B. angustatus*, and has the pronotum similarly formed, differing from it, however, in the much broader general shape, and in the produced apical angles of the sixth segment in the male. It is more parallel than the male of *B. neotropicalis*, and is more rugose beneath.

14. **Brachyrrhynchus mœstus.**

Mezira mœsta, Stål, Stett. ent. Zeit. 1862, p. 438 (♀) [1]; Enum. Hemipt. iii. p. 147 [2] (nec Walk.).
Brachyrrhynchus mœstus, Bergr. Proc. Ent. Soc. Wash. ii. p. 336 [3].

♀. Rather elongate, nigro-piceous, the legs and antennæ inclining to ferruginous; the membrane fuscous, obscure luteous behind the apex of the corium; the upper surface granulate (the connexivum included) and clothed with a few very minute ochraceous hairs; the legs and antennæ shortly pubescent. Head (exclusive of the apical process) transverse; the apical process stout, reaching to beyond the middle of the first antennal joint, feebly notched at the tip; the spiniform antenniferous processes long, acute, divergent; the post-ocular portions dilated laterally into an acute spine, which extends outwards as far as the eyes; antennæ moderately long, rather slender, joint 2 shorter than 1, 3 considerably longer than 1, 4 about as long as 2, piriform. Pronotum feebly emarginate at the base and sides, the margins crenulate; the anterior portion rounded and slightly dilated at the sides anteriorly, with indications of four faint ridges on the disc; the posterior portion much broader, rounded at the sides. Corium rounded at the apex. Connexivum rounded at the sides posteriorly, the sixth segment arcuate-emarginate at the apex, leaving the first genital segment broadly exposed, the latter with two broad rounded lobes. Beneath rugulose, dull; the venter rather convex, each segment with a smooth spot in the middle. Femora and tibiæ asperate.

Length 8, breadth $2\frac{1}{2}$ millim.

Hab. ?North America, California and Arizona [3].—Mexico [2 3] (*coll. Signoret* [1], *in Mus. Vind. Cæs.*).

The description is taken from the type in the Vienna Museum. A male from Omilteme (*H. H. Smith*) and a female from San Miguelito (*Dr. Palmer*) may belong to the same species. The type is very like the female of *B. neotropicalis*, but is relatively narrower and has the pronotum very feebly sinuate at the sides. The Omilteme specimen is narrower than the males of that insect. *B. mœstus* (Stål) must remain as a doubtful species until more specimens are obtained. *Mezira mœsta*, Walk., belongs to *Neuroctenus*.

15. **Brachyrrhynchus emarginatus.** (Tab. VII. figg. 5, ♂; 5 *a*, antenna.)

Aradus emarginatus, Say, Descr. of New Species of Heteropt. Hemipt. of N. Am. (New Harmony, Dec. 1831) [1]; Complete Writings, i. p. 354 [2].
Brachyrhynchus emarginatus, Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 281 [3].

Oblong-ovate, broad, piceous or piceo-ferruginous, the legs and antennæ sometimes entirely ferruginous, the membrane blackish or fuscous, obscurely luteous round the margin of the corium; the upper surface granulate, the connexivum rugulose, and sparsely clothed with excessively short, curled, ochraceous hairs; the legs and antennæ indistinctly pubescent. Head (exclusive of the apical process) transverse, rounded behind; the apical process convex, reaching to near the apex of the first antennal joint, shortly bilobed at the tip; the spiniform antenniferous processes stout, divergent; the post-ocular portions

rather broad, dilated laterally into a stout tooth, which extends outwards to a little beyond the eyes; antennæ stout, with stouter basal joint, joints 1–4 granulate, 2 and 4 subequal in length, 3 longer than 1, 4 oblong-ovate. Pronotum feebly emarginate at the base, rather deeply emarginate at the apex, slightly sinuate at the sides, the latter crenulate; the anterior portion dilated on each side laterally and anteriorly into a broadly rounded, raised lobe, the callosities each with indications of a short ridge in front; the posterior portion much wider, rounded at the sides anteriorly and subparallel behind. Scutellum transversely wrinkled. Corium obliquely truncated at the apex. Connexivum broad, rounded at the sides posteriorly in both sexes, with the apical angles of the sixth segment obtuse; the sixth segment in the female widely emarginate behind, leaving the first genital segment somewhat broadly exposed, the latter with two rounded lobes. Terminal genital segment of the male strongly transverse; the lobes of the first genital segment prominent and rather broad. Beneath rugose, dull; the venter somewhat convex, each segment with a small smooth spot in the middle. Legs stout, the femora and tibiæ granulate. Length $6\frac{1}{2}$–9, breadth 3–$3\frac{4}{5}$ millim. (♂ ♀.)

Hab. North America, Nevada, Upper and Lower California [3].—? Mexico [1 2].

The above description is taken from five specimens communicated by Prof. Uhler, one of these being figured on our Plate. The locality "Mexico," given by Say, requires confirmation, the insect perhaps not belonging to our fauna. The stout, rough antennæ separates it from all the Central-American species except *B. rugicornis*, from which it differs in the broader post-ocular portions of the head, the anteriorly emarginate pronotum, &c. The terminal genital segment of the male is very short, as in *B. regularis*, a species having much more slender antennæ. The corium is obliquely truncated at the apex, appearing slightly emarginate within.

16. **Brachyrrhynchus rugicornis,** n. sp. (Tab. VI. figg. 7, ♀; 7 *a*, antenna.)

♀. Oblong-ovate, moderately broad, piceo-ferruginous, the corium, the middle of the pronotum, and the sterna and scutellum in part, black, the antennæ piceous; the membrane fuscous, with an obscure luteous mark behind the apex of the corium, the nervures black; the upper surface granulate, the granules on the head and anterior half of the pronotum very coarse, the connexivum rugulose, and sparsely clothed with excessively short ochraceous hairs, the connexivum above and beneath here and there coated with a pallid ochraceous incrustation; the legs and antennæ indistinctly pubescent. Head (exclusive of the apical process) transverse; the apical process stout, reaching to the middle of the first antennal joint, shortly bilobed at the tip; the spiniform antenniferous processes broad, acute, divergent; the post-ocular portions short, armed laterally with a slender acute spine, which projects outwards as far as the eyes; antennæ comparatively short, stout, with a very stout basal joint, joints 1–4 granulate, 2 and 4 equal in length, 3 a little longer than 1, 4 oblong-ovate. Pronotum feebly emarginate at the base, and moderately sinuate at the sides, the latter crenulate; the anterior portion rounded and slightly dilated at the sides, the callosities each with indications of a short ridge; the posterior portion much broader, rounded at the sides anteriorly and subparallel behind. Scutellum with a distinct median ridge. Corium rounded at the tip. Connexivum moderately broad, rounded at the sides beyond the middle; the sixth segment rather deeply emarginate at the apex, leaving the first genital segment somewhat broadly exposed, the latter with two rounded lobes. Beneath rugose; the venter feebly convex, each segment with a smooth spot in the middle. Legs stout, the femora and tibiæ asperate.
Length $8\frac{2}{5}$, breadth $3\frac{1}{2}$ millim.

Hab. British Honduras, Belize (*Blancaneaux*).

One example. Very like *B. emarginatus* (Say); but differing from it in the much more coarsely granulate head and pronotum, the latter subtruncate in front and more deeply sinuate at the sides, the head less rounded at the base, with slender acute

post-ocular spines and more acute antenniferous processes. The femora and tibiæ are stout and asperate. The antennæ are stout and rough, with the apical joint less clavate than in most of the allied forms.

17. **Brachyrrhynchus yucatanus,** n. sp. (Tab. VII. fig. 8, ♀.)

♀. Oblong-ovate, rather narrow, fusco-ferruginous; the membrane fuscous, obscure luteous round the apex of the corium; the upper surface finely granulate, the connexivum rugulose, and clothed with a few scattered, minute, extremely short, ochraceous hairs. Head broader than long, rounded behind; the apical process stout, reaching to beyond the middle of the first antennal joint, feebly emarginate at the tip; the spiniform antenniferous processes acute, divergent; the post-ocular portions rather broad, dilated laterally into a short, stout spine, which extends to about as far as the eyes; antennæ stout, with stouter basal joint, joints 1–3 granulate, 3 considerably longer than 1, 2 and 4 equal, 4 oblong-ovate. Pronotum feebly emarginate at the base, rather deeply sinuate at the sides, the margins crenulate; the anterior portion rounded and slightly dilated at the sides, with four short ridges in front; the posterior portion wider and flattened. Scutellum with a faint median ridge. Corium reaching the middle of the second segment, with the apical margin slightly rounded. Connexivum broad, rounded at the sides posteriorly, the sixth segment rather deeply emarginate at the apex, leaving the first genital segment broadly exposed, the latter with two broad rounded lobes. Beneath rugulose; the venter flattened, each segment with a smooth oblong spot. Femora rather coarsely granulate.

Length $4\frac{3}{4}$, breadth 2 millim.

Hab. MEXICO, Temax in North Yucatan (*Gaumer*).

One example. Very like *B. granulatus* (Say), from Texas, Florida, &c. *, three specimens of which are before me, but with stouter and more cylindrical antennæ, the pronotum more deeply sinuate at the sides, the general shape more ovate. The less constricted, flatter pronotum, the more acute antenniferous processes, and the more slender legs separate it from *B. divisus*.

18. **Brachyrrhynchus nanus,** n. sp. (Tab. VII. fig. 9, ♀.)

♀. Oblong, rather narrow, fusco-ferruginous; the membrane nigro-fuscous, luteous round the apex of the corium; the upper surface finely granulate, the connexivum rugulose, and with a few extremely short, minute, ochraceous hairs (only visible under a high magnifying-power). Head transverse, rounded behind; the apical process stout, reaching almost to the apex of the first antennal joint, emarginate at the tip; the spiniform antenniferous processes short, stout, slightly divergent; the post-ocular portions rather broad, dilated laterally into a stout tooth, which extends outwards as far as the eyes; antennæ short, moderately stout, with a stouter basal joint, joints 1–3 granulate, 3 longer than 1, 4 slightly longer than 2, oblong-ovate. Pronotum flattened, feebly emarginate at the base, slightly sinuate at the sides, the margins crenulate, the anterior portion with indications of four short ridges in front. Scutellum with a faint median ridge. Corium reaching to the middle of the second segment, rounded at the apex. Connexivum rounded at the sides posteriorly, the sixth segment moderately emarginate at the apex, leaving the first genital segment somewhat broadly exposed, the latter with two prominent rounded lobes. Beneath rugulose; the venter flattened, with a small smooth oblong spot on each segment. Spiracles very prominent, approaching very near the margin posteriorly.

Length 4, breadth $1\frac{1}{2}$ millim.

Hab. GUATEMALA, San Isidro (*Champion*).

One example. This is the smallest Central-American species of the genus. It is nearest allied to *B. yucatanus*, differing from that insect in the less thickened antennæ,

* *B. granulatus* is recorded by Dr. Bergroth from Mexico (Proc. Ent. Soc. Wash. ii. p. 336), possibly in error.

with shorter second joint, the shorter and less acute antenniferous processes, the flatter pronotum, with the sides less deeply sinuate, the more rounded apex of the corium, and the more parallel general shape. *B. nanus* is also very like *Nannium elongatulum*, Bergr., from Venezuela, but has the first three spiracles more distant from the margin, the third antennal joint more cylindrical, and the antenniferous processes and the post-ocular spines more obtuse.

19. **Brachyrrhynchus divisus,** n. sp. (Tab. VII. fig. 10, ♀.)

♀. Oblong-ovate, piceo-ferruginous, the legs and antennæ obscure ferruginous; the membrane lurid, luteous round the apex of the corium, the nervures fuscous; the upper surface granulate, the connexivum rugulose, and sparsely clothed with extremely short, curled, ochraceous hairs, the connexivum partly coated with a pallid incrustation beneath; the legs and antennæ indistinctly pubescent. Head (exclusive of the apical process) transverse, somewhat rounded behind; the apical process broad and convex, reaching as far as the middle of the first antennal joint, emarginate at the tip; the spiniform antenniferous processes acute, slightly divergent; the post-ocular portions dilated laterally into a stout spine, which extends outwards to beyond the eyes; antennæ short, moderately stout, with very stout basal joint, joints 1 and 3 subequal in length, 2 slightly shorter than 4, 1 roughly granulate, 4 oblong-ovate. Pronotum feebly emarginate at the base, constricted at the sides, the two portions separated by a rather deep transverse groove, the margins crenulate; the anterior portion dilated on each side into a broad rounded lobe, the four callosities each with a prominent ridge; the posterior portion much broader, flattened, rounded at the sides anteriorly and subparallel behind. Scutellum with an indistinct median ridge. Corium reaching nearly to the middle of the second segment, rounded at the apex, and obliquely truncate within. Connexivum rounded at the sides behind, the sixth segment emarginate at the apex, leaving the first genital segment narrowly exposed, the latter with two short rounded lobes. Beneath rugose, dull; the venter feebly convex, each segment with an oblong smooth spot in the middle. Legs short, stout, the femora granulate.

Length 6, breadth $2\frac{1}{2}$ millim.

Hab. GUATEMALA, Zapote (*Champion*).

One example. This small species somewhat resembles the North-American *B. granulatus* (Say); but it has much stouter antennæ, in this respect approaching *B. emarginatus* and *B. rugicornis*, differing from both these insects in the constricted pronotum, the shorter legs, &c., as well as in size. The two portions of the pronotum are separated by a rather deep transverse groove, the anterior port on having four prominent ridges.

COLOBORRHYNCHUS, n. gen.

Head (exclusive of the apical process) transverse, obliquely narrowed behind the eyes, with spiniform antenniferous processes and a moderately long apical process, which is feebly emarginate at the tip; antennæ with joint 1 stout, and longer than the apical process, the other joints more slender; rostrum short, not extending beyond the base of the head. Pronotum transverse, sinuate at the sides, very feebly emarginate at the base, and truncate at the apex; the anterior portion with a curved longitudinal ridge on each side midway between the flattened inner callus and the margin, and extending forwards to the slightly raised anterior margin. Scutellum triangular. Corium reaching about as far as the middle of the second connexival segment, its apical margin truncate. Membrane with a few prominent nervures. Connexivum broad. Spiracles on the first three segments distant from the margin, those on the following segments marginal, the last two visible from above. Legs very short, granulate, the femora smooth on their inner face, the tibiæ and tarsi slender. Surface granulate, the connexivum smoother.

The single small species from which the above-mentioned characters are taken has the facies of a *Brachyrrhynchus*, but differs from that genus in the position of the spiracles (the insect in this respect approaching the genus *Nannium*, Bergr.), as well as in having a prominent longitudinal ridge on each side of the anterior part of the pronotum.

1. **Coloborrhynchus pumilio,** n. sp. (Tab. VII. figg. 11, ♂; 11 *a*, antenna.)

♂. Oblong-ovate, flattened above, ferruginous, the basal half of the pronotum, the scutellum, and corium fusco-ferruginous; the membrane nigro-fuscous, obscure luteous round the apex of the corium; the upper surface finely granulate, the connexivum almost smooth, and clothed with a few extremely short microscopic hairs. Head with a very short spine on each side behind the eyes; the apical process reaching to considerably beyond the middle of the first antennal joint; the spiniform antenniferous processes moderately long, acute; antennæ rather short, moderately stout, with a stouter basal joint, joints 1 and 3 equal in length, 2 short, not so long as 4, 4 oblong-ovate, pilose at the tip. Pronotum feebly sinuate at the sides, the margins finely crenulate; the anterior portion rounded at the sides anteriorly, and with a prominent longitudinal curved ridge on each side on the outer part of the disc, the two inner callosities flat and without trace of ridges. Scutellum transversely wrinkled, and with a distinct median ridge. Connexivum broad, rounded at the sides posteriorly. Terminal genital segment cordate; the lobes of the first genital segment short and stout. Beneath dull and rugulose, the ventral segments each with a small smooth spot in the middle, the connexivum partly coated with a pallid incrustation.

Length 4, breadth 1½ millim.

Hab. PANAMA, Bugaba (*Champion*).

One example.

NEUROCTENUS.

Neuroctenus, Fieber, Europ. Hemipt. p. 34 (1861); Stål, Enum. Hemipt. iii. pp. 140, 145; Bergroth, Öfv. Finska Vet.-Soc. Förh. xxix. p. 174 (1887).

Of the twenty-eight described species of this widely distributed genus, one-half are American, ten occurring within our limits, whence four others are now added. Two inhabit the United States and four are recorded from South America, two of the latter extending into our region. The genus was monographed by Dr. Bergroth in 1887, and since then ten other species have been added. These insects are very like *Brachyrrhynchus*, differing chiefly in the carinate anterior margins of the ventral segments 3–5, the acute apex of the corium, and the flattened pronotum. The median portion of the apical margin of the fifth ventral segment is bisinuate in the females, and truncate in the males. In the females of *N. uhleri*, &c., the terminal genital segment is notched or bilobed at the tip, and the lobiform lateral portions of the preceding segment also vary a little in form according to the species.

a. Body subtriangular (♂), ovate (♀); apical process of the head subconical; pronotum sinuate at the sides.
  a'. Antennæ with joint 1 much longer than the apical process of the head, 4 shorter than 3; sixth connexival segment (♂) with an oblique fold . . . . . *bergrothi,* n. sp.

b'. Antennæ with joint 1 not longer than the apical process of the head, 3 and 4 subequal; sixth connexival segment (♂) with a transverse fold . . . . . *trigonus*, Bergr.

b. Body ovate or oblong in both sexes.

c'. Antennæ with joint 1 longer than the apical process of the head; sixth connexival segment (♂) without fold.

a''. Pronotum sinuate at the sides.

a'''. Apical process of the head subconical; antennæ long and rather slender: body broad-ovate, very depressed . . . . . *dilatatus*, Bergr.

b'''. Apical process of the head subparallel or slightly widening forwards.

*a*⁴. Body broad-ovate, somewhat coarsely sculptured; antennæ rather slender; venter moderately convex . . . . . *ovatus*, Stål.

*b*⁴. Body narrower, ovate or oblong.

*a*⁵. Sculpture moderately coarse: length 7–9 mm.

*a*⁶. Antennæ stout: form more elongate . . . . . **terginus*, Stål.

*b*⁶. Antennæ more slender: form less elongate . . . . . *litigiosus*, Stål.

*b*⁵. Sculpture fine: length 6–7 mm. . . . . *punctulatus*, Burm.

b''. Pronotum not or scarcely sinuate at the sides.

c'''. Sculpture fine; body very depressed, ferruginous: length 5–5½ mm. . . . . *papyrinus*, Bergr.

d'''. Sculpture moderately coarse; antennæ short and very stout, joint 1 longer than 2; body broad: length 8½ mm. . . . . **distanti*, Bergr.

e'''. Sculpture very coarse; antennæ short and very stout, joints 1 and 2 equal in length; body broad: length 7–8 mm. . . . *niger*, Bergr.

d'. Antennæ with joint 1 not or very little longer than the apical process of the head; the apical process subparallel or subconical; pronotum sinuate at the sides.

c''. Body (♂ ♀) ovate.

f'''. Sixth connexival segment (♂) with a prominent fold . . . . *mexicanus*, n. sp.

g'''. Sixth connexival segment (♂) without fold.

*c*⁴. Antennæ with joints 1–3 increasing in length: body broad; terminal genital segment (♀) not notched at the tip . . . *amplus*, n. sp.

*d*⁴. Antennæ with joints 1–3 subequal in length: body rather narrow; terminal genital segment (♀) deeply notched at the tip . . . . . *uhleri*, Bergr.

d''. Body (♀) narrow, subparallel; antennæ short and stout, joints 1–3 subequal in length, 4 longer than 3; venter rather convex . **subparallelus*, n. sp.

1. **Neuroctenus bergrothi,** n. sp. (Tab. VII. figg. 12, ♂; 12 *a*, terminal genital segment in profile, drawn out; 13, ♀, from beneath.)

Elongate, broad, depressed, subtriangular (♂), ovate (♀), black, the venter and the apical margins of the connexival segments sometimes piceous, the tarsi piceous or obscure ferruginous, the membrane with two

* The males of these species are unknown or undescribed.

small yellowish spots in front; the upper surface closely and finely, the connexivum very minutely, granulate. Head (exclusive of the apical process) broader than long, rounded behind; the apical process subconical, long, extending to a little beyond the middle of the first antennal joint, notched at the tip; the spiniform antenniferous processes short; the post-ocular spines short, sometimes extending outwards as far as the eyes; antennæ moderately long, comparatively slender, joints 2 and 3 subequal in length, each slightly longer than 1, 4 shorter than 3, fusiform. Pronotum short, sinuate at the sides, the anterior angles rounded and projecting a little forwards. Corium reaching to a little beyond the first segment, the apical margin bisinuate. Connexivum very broad, rounded at the sides in the female; in the male widening from the base to the apex of the third segment, with the fourth segment parallel and the fifth and sixth segments broadly and subarcuately dilated posteriorly, the sixth obliquely narrowing and with an oblique median fold. Terminal genital segment of the male strongly transverse; the lobes of the first genital segment rather prominent. Terminal genital segment of the female subtruncate. Beneath rugulose, dull; the venter flattened, each segment with a smooth oblong spot in the centre. Legs moderately long, the femora stout and granulate.

Length $7\frac{1}{3}$–$9\frac{1}{2}$, breadth $3\frac{1}{2}$–$4\frac{1}{2}$ millim. (♂ ♀.)

Hab. GUATEMALA, Purula in Vera Paz 4000 feet (*Champion*).

Numerous examples, from the humid forests of the Atlantic slope. Allied to *N. trigonus*, Bergr., from the Pacific slope of Guatemala; differing from that insect, in the male sex, in being more widened behind, with the fifth segment more dilated at the sides posteriorly, the sixth segment with an oblique median fold (instead of a transverse one, as in *N. trigonus*), the antennæ more elongate and with the apical joint shorter than the third.

2. **Neuroctenus trigonus.** (Tab. VII. fig. 14, ♂.)

Neuroctenus trigonus, Bergr. Ent. Tidskr. xv. p. 114 (♂) (1894)[1].

Hab. GUATEMALA, Volcan de Agua 9000 to 10,000 feet (*coll. Bergroth*[1]; *Champion*).

Two males of this species were found by myself on the Volcan de Agua. They are slightly larger than the type, communicated by Dr. Bergroth, and have the upper surface a little more coarsely granulated. All three specimens have a transverse ridge or fold on the sixth connexival segment beyond the middle, this being preceded by a small tubercle, which is placed near the inner margin.

3. **Neuroctenus dilatatus.** (Tab. VII. fig. 15, ♂.)

Neuroctenus dilatatus, Bergr. Ent. Tidskr. xv. p. 115 (♂) (1894)[1].

Hab. MEXICO, Atoyac in Vera Cruz (*Schumann*: ♀); GUATEMALA, Zapote (*Champion*: ♂ ♀); COSTA RICA (*coll. Montandon*[1]).

Of this species we possess nine specimens, eight of which are from Guatemala. Recognizable by the broadly dilated, comparatively smooth, connexival segments, which are more or less ferruginous in colour, the long and rather slender antennæ, &c. The insect varies a good deal in size. The sixth connexival segment of the male is without a median fold. The type has been examined. The terminal genital segment of the female is subtruncate at the apex. A male from Zapote is figured.

4. **Neuroctenus ovatus.** (Tab. VII. fig. 16, ♀.)

Mezira ovata, Stål, Stett. ent. Zeit. 1862, p. 439 (♂ ♀) [1]; Enum. Hemipt. iii. p. 147 [2].
Neuroctenus ovatus, Bergr. Wien. ent. Zeit. xvii. p. 27 (♀) (Jan. 1898) [3].

Hab. Mexico [2 3] (*coll. Signoret* [1]), Orizaba (*Bilimek, in Mus. Vind. Cæs.*: ♀).

We have not received a specimen of this insect, but Dr. Bergroth has communicated a Mexican example (♀) of it for examination, and from this our figure is taken. *N. ovatus* is very like *N. dilatatus*, but it has a longer, stouter, and more parallel apical process to the head (reaching to near the apex of the first antennal joint), and less acute antenniferous processes; the upper surface is also more coarsely granulate and the connexivum rugulosely punctured. The abdomen in the female is more rounded at the sides than in the corresponding sex of *N. dilatatus*, and has the terminal genital segment bilobed at the apex.

The insect described by Dr. Bergroth (Öfv. Finsk. Vet.-Soc. Förh. xxix. p. 183) under the name *N. ovatus*, Stål (a pair of which I have seen), belongs to a different species, *N. pseudonymus*, Bergr.*; it is from North Carolina.

5. **Neuroctenus terginus.**

Brachyrhynchus terginus, Stål, Rio Jan. Hemipt. i. p. 66 [1].
Neuroctenus terginus, Stål, Enum. Hemipt. iii. p. 146 [2]; Bergr. Öfv. Finsk. Vet.-Soc. Förh. xxix. p. 186 (♀) [3].

Hab. Guatemala [3].—Colombia [3], Bogota [2]; Venezuela [3]; Brazil [3], Rio Janeiro [1 2].

This species, the type (♀) of which has been communicated by Dr. Aurivillius, is very like *N. litigiosus*; but it is more elongate and has stouter antennæ (the third and fourth joints are broken off in the type). It is probable that there is some mistake about the Guatemalan record, or the insect would have been met with in the intervening region; Dr. Bergroth, however, assures me that he has seen a Guatemalan specimen of it.

6. **Neuroctenus litigiosus.** (Tab. VII. figg. 17, ♂; 17 *a*, antenna; 17 *b*, elytron; 18, apex of abdomen, ♀.)

Mezira litigiosa, Stål, Stett. ent. Zeit. 1862, p. 439 (♂ ♀) [1].
Neuroctenus litigiosus, Stål, Enum. Hemipt. iii. p. 146 [2]; Bergr. Öfv. Finsk. Vet.-Soc. Förh. xxix. p. 185 [3].

Hab. Mexico [3] (*Mus. Holm.* [1 2]; *coll. Signoret* [1]; *Mus. Paris, ex Sallé*); British Honduras, Belize (*Blancaneaux*); Guatemala, San Joaquin, Balheu, and Purula in Vera Paz, Cerro Zunil, Capetillo (*Champion*); Costa Rica (*Mus. Paris*), Caché (*Rogers*); Panama, Bugaba, Volcan de Chiriqui (*Champion*).

Of this species I have seen about eighty examples, mostly from Capetillo and the

* Wien. ent. Zeit. xvii. p. 2 (Jan. 1898).

Volcan de Chiriqui. It is rather variable, the Chiriqui specimens usually having the antennæ a little more elongate and the antenniferous processes less acute than in the type (♀) communicated by Dr. Aurivillius. The membrane is often entirely black. The males are generally more widened posteriorly than the females. Capetillo specimens are figured.

7. **Neuroctenus punctulatus.**

Brachyrhynchus punctulatus, Burm. Handb. der Ent. ii. p. 254 (1835)[1].
Neuroctenus punctulatus, Bergr. Öfv. Finsk. Vet.-Soc. Förh. xxix. p. 184 (♂ ♀) (1887)[2]; Leth. et Sev. Cat. gén. Hémipt., Hétéropt. iii. p. 45[3].
Brachyrhynchus bimaculatus, Stål, Rio Jan. Hemipt. i. p. 66 (♀) (1860)[4].
Neuroctenus brasiliensis, Mayr, Verh. zool.-bot. Ges. Wien, xvi. p. 365 (1866)[5]; Reise der Novara, Hemipt. p. 167, t. 4. fig. 48 (♀)[6].
Neuroctenus rubiginosus, Bergr. Öfv. Finsk. Vet.-Soc. Förh. xxix. p. 184 (♂ ♀)[7]; Leth. et Sev. loc. cit. p. 45[8].
Neuroctenus frugalis, Bergr. Wien. ent. Zeit. viii. p. 52 (♂) (1889)[9].

Hab. Mexico[8], Dos Caminos in Guerrero (*H. H. Smith*); Guatemala, El Tumbador, Capetillo (*Champion*); Nicaragua, Chontales (*Janson*); Panama, Volcan de Chiriqui (*Champion*).—Colombia[7 8]; Brazil[1–6 9]; Antilles, Cuba[7 8].

Found in plenty at Capetillo and in Chiriqui. An elongate, narrow, depressed species, with the head, pronotum, and scutellum finely granulate; the connexivum is almost smooth, finely carinate near the outer margin, and rounded at the sides posteriorly in both sexes; the pronotum is short, trapezoidal, with the sides feebly sinuate and the more or less rounded anterior angles somewhat prominent in front. Examples occur of a ferruginous colour (*N. rubiginosus*, Bergr.). Dr. Bergroth has examined one of the Chiriqui specimens and pronounced it to be *N. punctulatus*. In the single (♀) specimen from Mexico the post-ocular portions of the head are armed with a short spine. One of the types, a male, of *N. rubiginosus*, from Cuba, has been seen. The terminal genital segment of the female is truncate at the apex.

8. **Neuroctenus papyrinus.** (Tab. VII. fig. 19, ♀.)

Neuroctenus papyrinus, Bergr. Wien. ent. Zeit. xiv. p. 170 (♂ ♀) (1895)[1].

Hab. Mexico, Cuernavaca in Morelos (*Bilimek, in Mus. Vind. Cæs.*[1]).

This small species is ferruginous in colour; the membrane is fuscous, with two luteous marks at the base; the post-ocular spines extend to a little beyond the eyes; the pronotum is short, trapezoidal*; the corium is short, strongly bisinuate at the apex; the connexivum is broad, rounded externally, the general shape of the insect being ovate; the genital lobes (♀) are short and subtruncate at the apex; the antennæ are about one-half longer than the head, the basal joint extending a little beyond the tip

* It is more transverse than represented by our artist.

of the apical process, the fourth joint comparatively short, scarcely so long as the second. One of the types, a female, has been examined, and from this our figure is taken.

9. **Neuroctenus distanti.** (Tab. VII. fig. 20, ♀.)

Neuroctenus distanti, Bergr. Öfv. Finsk. Vet.-Soc. Förh. xxix. p. 184 (♀) (1887) [1].

Hab. Mexico (*Mus. Berol.*[1]).

This insect is described as having the antennæ rather stout, with the first joint extending very little beyond the apex of the head, the second and third joints subequal, the second slightly shorter than the first, the fourth shorter than the third; the spiniform antenniferous processes short, parallel externally; the post-ocular spines extending to beyond the eyes; the pronotum with the sides rounded and not sinuate; the corium with the apical margin bisinuate; the venter slightly convex, with the posterior margins of segments 2–5 a little thickened. The body is elliptic in shape, opaque, black, with the tarsi fulvo-ferruginous, the membrane lutescent at the base. To judge from a drawing made for me by Fr. H. v. Zglinicka from the type (♀) in the Berlin Museum, *N. distanti* is very closely allied to *N. niger*, Bergr.; but it appears to be less coarsely granulate, and to have the basal joint of the antennæ a little longer, the connexivum more distinctly carinate towards the outer margin, and the genital segments somewhat differently formed. Our figure is taken from this drawing.

10. **Neuroctenus niger.** (Tab. VII. fig. 21, ♀.)

Neuroctenus niger, Bergr. Wien. ent. Zeit. xiv. p. 170 (♂ ♀) (1895) [1].

Hab. Mexico, Cuernavaca in Morelos (*Bilimek, in Mus. Vind. Cæs.*[1]).

A female specimen of this species has been communicated by Dr. Bergroth. *N. niger* is separable from most of its allies by the short, stout antennæ, the coarsely granulate head and pronotum, the latter with the sides not sinuate, the prominent post-ocular spines, the rugosely punctured connexivum, &c.

11. **Neuroctenus mexicanus,** n. sp. (Tab. VII. fig. 22, ♂.)

Mezira mœsta, Walk. Cat. Hemipt. Heteropt. vii. p. 23 (♀) (part.) (nec Stål) [1].

Ovate, black, the abdomen, the tips of the antennæ, and the tarsi piceous or fusco-ferruginous, the venter paler, the membrane with two obscure luteous spots at the base; the upper surface finely granulate, the connexivum finely rugulose. Head somewhat rounded at the base; the apical process stout, reaching as far as the apex of the first antennal joint, slightly notched at the tip; the spiniform antenniferous processes moderately long, acute, subparallel externally; the post-ocular portions armed with a short spine, which extends outwards as far as the eyes; antennæ moderately stout, joints 1–3 gradually increasing in length, 4 ovate, shorter than 3. Pronotum short, very feebly sinuate at the sides, emarginate in front. Corium acute at the tip, the apical margin bisinuate. Connexivum moderately broad, rounded at the sides posteriorly in both sexes; the sixth segment obliquely narrowed in the male and with a prominent, sinuous, oblique median plica. Venter flattened, the fifth segment with the median portion of the apical margin truncate in the male and bisinuate in the female. Terminal genital

segment of the female slightly emarginate at the apex; the lobes of the first genital segment broad and rounded. Femora granulate.

Length $7\frac{1}{2}$–$7\frac{3}{4}$, breadth $3\frac{1}{10}$–$3\frac{1}{4}$ millim. (♂ ♀.)

Hab. Mexico, Oaxaca (*Sallé*, *Mus. Brit.*[1]).

One male and two females of this species are contained in the British Museum, and we also possess a male of it from Sallé. Very like *N. amplus*, but relatively narrower, especially in the female, the male with a conspicuous fold on the sixth connexival segment, the pronotum more feebly sinuate at the sides. Also very like *N. uhleri*, Bergr., but broader and a little more finely granulate, the terminal genital segment of the female not deeply emarginate, the genital lobes shorter. Walker confused two genera and several species under the name *Mezira mœsta*. The insect is unknown to Dr. Bergroth.

12. **Neuroctenus amplus**, n. sp. (Tab. VII. fig. 23, ♂.)

Ovate, depressed, dull, black, the abdomen piceous or fusco-ferruginous, the tips of the antennæ and the coxæ and tarsi fulvous or ferruginous, the membrane with two luteous spots at the base; the upper surface finely granulate, the connexivum very finely rugulose. Head somewhat rounded at the base; the apical process stout, long, reaching as far as the apex of the first antennal joint, slightly notched at the tip; the spiniform antenniferous processes acute, moderately long, subparallel externally; the post-ocular portions armed with a rather prominent spine, which projects outwards as far as or to a little beyond the eyes; antennæ moderately stout, rather long, joints 1–3 increasing in length, 1 and 4 subequal, 4 ovate. Pronotum short, emarginate in front, the sides feebly sinuate. Corium acute, the apical margin bisinuate. Connexivum broad, rounded at the sides posteriorly in the female; in the male with the fifth and sixth segments obliquely narrowed, and their outer apical angles rounded externally. Beneath dull and very finely rugulose. Venter flattened; fifth ventral segment with the median portion of the apical margin truncate in the male and bisinuate in the female. Terminal genital segment of the female unemarginate at the apex, the lobes of the preceding segment broadly rounded. Femora granulate.

Length $6\frac{9}{10}$–$8\frac{4}{5}$, breadth 3–4 millim. (♂ ♀.)

Hab. Mexico, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

One male and three females. Very like *N. dilatatus*, Bergr., but with a stouter and more cylindrical apical process to the head, and differently formed antennæ, joints 1–3 increasing in length (long and subequal in *N. dilatatus*), 1 short and not longer than the apical process. *N. uhleri* is also an allied form, but it is narrower and has shorter antennæ, with joints 1–3 subequal in length. This last-mentioned species (a female only of which is before me) is compared by Dr. Bergroth with *N. simplex*, Uhler, and *N. punctulatus*, Burm.

13. **Neuroctenus uhleri.** (Tab. VII. fig. 24, ♀.)

Neuroctenus uhleri, Bergr. Wien. ent. Zeit. xiv. p. 169 (♂ ♀) (1895)[1].

Hab. Mexico, Orizaba (*Bilimek*, *in Mus. Vind. Cæs.*[1]).

This species is oblong in shape, and pitchy-black in colour, the abdomen ferruginous, with the ventral surface yellowish in the middle; the antennæ are rather short, with

joints 1–3 subequal in length and 4 shorter than 3; the post-ocular spines extend outwards to a little beyond the eyes; the pronotum is feebly sinuate at the sides; the connexivum is rather narrow and faintly longitudinally carinate towards the outer margin. One of the types, a female, has been examined; it has the terminal genital segment deeply notched at the apex, as may be seen by a reference to our figure.

14. **Neuroctenus subparallelus,** n. sp. (Tab. VII. figg. 25, ♀; 25*a*, antenna.)

♀. Elongate, narrow, parallel or subparallel, dull, black, the tips of the antennæ, the coxæ and tarsi, and sometimes the apical margins of the connexival segments, more or less ferruginous, the membrane with two obscure luteous spots at the base; the upper surface granulate, the connexivum finely rugulose. Head somewhat rounded at the base; the apical process long and stout, extending fully as far as the apex of the first antennal joint, notched at the tip; the spiniform antenniferous processes short; the post-ocular portions armed with a short spine; antennæ short and stout, joints 1–3 subequal in length, 4 ovate, stouter and considerably longer than 3. Pronotum trapezoidal, short, sinuate at the sides, the anterior angles rounded. Corium acute at the tip, the apical margin feebly bisinuate. Connexivum narrow, rounded at the sides posteriorly. Beneath dull and rugose; the venter rather convex, the segments each with a smooth, narrow, elongate-triangular spot in the middle behind; the fifth segment with the median portion of the apical margin feebly bisinuate. Terminal genital segment unemarginate at the apex. Femora granulate.

Length $5\frac{1}{2}$–$6\frac{1}{4}$, breadth $1\frac{7}{8}$–2 millim.

Hab. Mexico, Atoyac in Vera Cruz (*Schumann*); Guatemala, Senahu and Cubilguitz in Vera Paz, El Tumbador (*Champion*).

A single specimen from each locality. Belongs to Dr. Bergroth's first section of the genus, but differs from all the species described in his Monograph by its narrow, parallel shape, in connection with the short, stout antennæ, with long apical joint, and the rather convex, rugose venter.

This insect is nearly allied to *N. longulus*, Bergr., from Cayenne *; but it is smaller and less robust, with the apical joint of the antennæ longer than the third, the post-ocular portions of the head armed with a short tooth, &c. The specimen from Cubilguitz is figured.

ANEURUS.

Aneurus, Curtis, Brit. Ent. p. 86 (1825); Fieber, Europ. Hemipt. pp. 35, 116; Stål, Enum. Hemipt. iii. pp. 140, 146; Bergroth, Verh. zool.-bot. Ges. Wien, xxxvi. p. 58 (1886).

The species of this genus are very similar in appearance, but, as a rule, easily distinguishable by the structure of the head and antennæ, and the form of the terminal genital segment in the males. They may be readily recognized by their very flattened form, semicircular scutellum, membranous, undefined corium, the membrane without distinct nervures, and short wings. Dr. Bergroth (*op. cit.*) has characterized five neotropical species (one of which, *A. westwoodi*, Bergr., had been previously described by Walker under the name of *Crimia marginalis*); but of these one only appears to inhabit Central America, whence five are now recorded.

* Bull. Mus. Paris, 1898, p. 150.

a. Antennæ moderately stout, with joints 1 and 2 ovate or elliptic, and 3 and 4 cylindrical.
  a'. Body ovate, dull.
    a''. Third antennal joint nearly twice as long as the second; antenniferous tubercles long and spiniform; terminal genital segment (♂) long and convex . . . . . *montanus*, n. sp.
    b''. Third antennal joint only a little longer than the second; antenniferous tubercles short, acute; terminal genital segment (♂) transverse . . *minutus*, Bergr.
  b'. Body oblong, narrow, dull; antennæ short, with joint 3 slightly longer than 2; antenniferous tubercles short, acute; terminal genital segment (♂) transverse . . . . . *tenuis*, n. sp.
b. Antennæ moderately stout, with joints 2 and 3 subequal in length and similarly formed, each becoming a little thinner towards the base, 4 subcylindrical; antenniferous tubercles obtuse; body ovate, shining; terminal genital segment (♂) transverse . . . . . *politus*, Say.
c. Antennæ with joints 2–4 slender, 2 and 3 similarly formed, each becoming thinner towards the base, 4 fusiform; antenniferous tubercles obtuse; body ovate, shining; terminal genital segment (♂) long and convex . . . . *tenuicornis*, n. sp.

1. **Aneurus montanus**, n. sp. (Tab. VII. figg. 26, ♀; 26 *a*, antenna.)

Ovate, dull, black, the abdomen, and sometimes the front of the head, the basal half of the pronotum, and the apical margin of the scutellum also, rufo-piceous, the elytra whitish-yellow at the base. Head rugose and obsoletely granulate, with acute, outwardly directed, spiniform, antenniferous tubercles and short post-ocular spines; antennæ about twice as long as the head, joints 1 and 2 oval, 3 and 4 cylindrical, 4 slightly thickened towards the apex, 1 stout, 2 much more slender and much shorter than 1, 3 longer than 1, 4 nearly twice as long as 3. Pronotum subtruncate at the base, rugulose and obsoletely granulate. Scutellum nearly or quite as long as the pronotum, and similarly sculptured. Connexivum very finely rugulose. Legs rather long, the femora moderately thickened and finely granulate. Terminal genital segment of the male long and convex, extending beyond the genital lobes, transversely rugulose.

Length 5–5½, breadth 2–2½ millim. (♂ ♀.)

Hab. GUATEMALA, Totonicapam 8500 to 10,500 feet (*Champion*).

Six examples, probably found under pine-bark. This insect approaches the European *A. lævis* (Fabr.), and has a similarly formed scutellum; but differs from it in the acute antenniferous tubercles and the longer apical joint of the antennæ. It has the femora less thickened than in the other Central-American species.

2. **Aneurus minutus.** (Tab. VII. fig. 27, head and portion of the pronotum, ♂.)

Aneurus minutus, Bergr. Verh. zool-bot. Ges. Wien, xxxvi. p. 58 (1886)[1]; Proc. Ent. Soc. Wash. ii. p. 337[2].

Hab. NORTH AMERICA, Texas[1 2].—GUATEMALA, El Tumbador, El Reposo, Zapote (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Of this small species upwards of thirty examples have been obtained, one of which

Dr. Bergroth has examined. It is ferruginous in colour and opaque; the antennæ with joints 1 and 2 oval and 3 and 4 cylindrical, 1 very stout, 2 much more slender and a little shorter than 1, 3 slightly longer than 2, 4 twice as long as 3; the head with short, spiniform, antenniferous tubercles and acute post-ocular spines; the legs short, with short clavate femora. The general shape is narrowly ovate. The terminal genital segment of the male is small and transverse, and does not extend beyond the genital lobes. Our figure is taken from a specimen from El Reposo.

3. **Aneurus tenuis,** n. sp. (Tab. VII. figg. 28, ♂; 28 *a*, antenna.)

♂. Oblong, narrow, dull, black, the abdomen and legs piceous. Head rugulose, with short, acute, antenniferous tubercles and rather prominent post-ocular spines; antennæ short and stout, barely one and a half times as long as the head, joints 1 and 2 oval, 1 very stout, 2 more slender and much shorter than 1, 3 cylindrical, a little longer than 2, 4 about twice as long as 3, subcylindrical, pointed at the tip. Pronotum distinctly sinuate at the base, rugulose. Scutellum a little broader than long, rugose. Connexivum finely rugulose. Legs short, the femora clavate. Terminal genital segment small and transverse, not extending beyond the genital lobes, rugulose.

Length 4, breadth $1\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui 3000 feet (*Champion*).

One example. Allied to the South-American *A. burmeisteri* and *A. sahlbergi*, Bergr., but with differently formed antennæ &c. The right antenna is abnormally formed in the specimen described, it having two joints only and of equal length.

4. **Aneurus politus.** (Tab. VII. figg. 29, ♂; 29 *a*, antenna.)

Aneurus politus, Say, Descr. of New Species of Hemipt. Heteropt. of N. Am. (New Harmony, Dec. 1831) [1]; Complete Writings, i. p. 354 [2]; Uhler, Proc. Bost. Soc. Nat. Hist. xix. p. 421 (1878) [3]; Bergr. Proc. Ent. Soc. Wash. ii. p. 337 [4].

Ovate, shining, rufo-castaneous or rufo-ferruginous. Head rugulose, with obtuse antenniferous tubercles and acute post-ocular spines; antennæ nearly twice as long as the head, joints 1–3 subequal in length, 4 as long as 2 and 3 united, 1 stout, oval, 2 and 3 slightly thinner at the base, 4 subcylindrical. Pronotum feebly emarginate at the base, the raised parts smooth and shining, the depressions rugulose. Scutellum flat, broader than long, rugulose. Connexivum smooth, except along the outer margin. Legs short, the femora clavate and sparsely granulate. Terminal genital segment of the male small and transverse, not extending beyond the genital lobes.

Length $4\frac{1}{2}$–$4\frac{4}{5}$, breadth 2–$2\frac{1}{8}$ millim. (♀.)

Hab. NORTH AMERICA, Florida [1 2 3 4].—GUATEMALA, Capetillo (*Champion*).—ANTILLES, Cuba [3 4].

Five specimens, one of which is much darker in colour than the others, due probably to discoloration, these agreeing with the brief descriptions of Say and Uhler. Smaller and less elongate than *A. tenuicornis*, with much shorter and stouter antennæ, joints 2 and 3 being relatively much shorter and 4 subcylindrical, and more acute post-ocular spines; the scutellum, too, is without a smooth oblong space in the middle in front.

5. **Aneurus tenuicornis,** n. sp. (Tab. VII. figg. 30, ♂ ; 30 *a*, antenna; 31, apex of the abdomen, ♀.)

Ovate, rather elongate, shining, piceous or castaneous, the abdomen above and beneath rufo-ferruginous, with the connexivum usually darker. Head transversely rugulose, with obtuse antenniferous tubercles and short post-ocular spines; antennæ considerably more than twice the length of the head, joint 1 moderately stout, oval, 2–4 slender, 2 one-half longer than 1, 3 as long as or a little longer than 2, 4 nearly as long as 2 and 3 united, 2 and 3 slightly thinner at the base, 4 fusiform, 3 and 4 pilose. Pronotum feebly emarginate at the base, the raised portions smooth and shining, the depressions rugulose. Scutellum transverse, rugulose, an oblong space in the middle in front excepted. Connexivum smooth, except along the outer margin. Legs rather long, the femora clavate and sparsely granulate. Terminal genital segment of the male long and convex, extending beyond the genital lobes, almost smooth.

Length $4\frac{3}{4}$–6, breadth 2–$2\frac{1}{2}$ millim. (♂ ♀.)

Hab. GUATEMALA, Capetillo (*Champion*); PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Var.? Smaller and a little less elongate; the antennæ shorter, with joint 2 not much longer than 1; the elytra yellowish at the base.

Length 4, breadth $1\frac{7}{8}$ millim. (♀.)

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Found in numbers at Capetillo, sparingly in Chiriqui. The variety (?) is represented by a single specimen. This species is allied to *A.* (*Crimia*) *marginalis*, Walk. (=*westwoodi*, Bergr.), from Colombia; but differs from it in having joints 2–4 of the antennæ much more slender, and 4 fusiform, and the pronotum smoother. *A.* (*Crimia*) *simulans*, Walk., from Brazil, of which there are numerous specimens in the British Museum, is also very like *A. tenuicornis*, but it is smaller and narrower, and has stouter antennæ, the apical joint being fusiform in both species. The small variety (?) is very like *A. simulans*, but it is broader and not so smooth, and has more slender antennæ. *A. simplex*, Uhler *, from New England, is also described as having long and very slender antennæ, but with the third joint less than one-half the length of the fourth; it is, however, more coarsely granulate than *A. tenuicornis*. *A. flavomaculatus*, Dist., from Ecuador, has the antennæ stouter, the pronotum more rugose, the antenniferous tubercles less obtuse, and the elytra broadly yellowish at the base. Capetillo specimens are figured. The insect is unknown to Dr. Bergroth.

ANEUROSOMA, n. gen.

Scutellum equilaterally triangular, as long as the pronotum. Pronotum truncate at the base. Abdomen (♀) very broadly truncate-emarginate at the apex. The other characters as in *Aneurus*.

The single species referred to this genus has all the characters of *Aneurus*, save the form of the scutellum. It also resembles *Isodermus*, Er., but has a rostral channel.

* The North-American *A. septentrionalis*, Walk., has rather stout antennæ, but with the joints of about the same length as in *A. simplex*.

The first genital segment is more strongly transverse than in the females of any *Aneurus* known to me.

1. **Aneurosoma dissimile.** (Tab. VII. figg. 32, ♀; 32 *a*, antenna.)

Aneurus dissimilis, Bergr. Wien. ent. Zeit. viii. p. 52 (♀) (1889)[1]; Leth. et Serv. Cat. gén. Hémipt., Hétéropt. iii. p. 46[2].

♀. Elongate-ovate, rather narrow, shining, nigro-piceous, the front of the head, the outer half of the apical joint of the antennæ, the anterior lobe of the pronotum, the abdomen, and legs rufo-ferruginous. Head rugulose, with a smooth callosity on each side between the eyes; the antenniferous tubercles rounded; the post-ocular portions tumid and obtuse, subtruncate behind; antennæ more than twice the length of the head, joint 1 stout, obovate, 2–4 slender, 2 and 3 equal in length, becoming thinner towards the base, each considerably longer than 1, 4 fusiform, about as long as 1 and 2 united, pilose at the tip. Pronotum transverse, trapezoidal, emarginate at the sides and in front; the anterior and posterior lobes separated by a deep groove, each smooth and callous towards the sides, the anterior lobe also with two smooth callosities on the disc, the other portions of the surface finely rugulose and minutely granulate. Scutellum rugulose, smoother in the centre. Corium subopaque. Connexivum almost smooth, except along the margin. Abdomen broadly truncate-emarginate at the apex, the first genital segment short and very wide. Legs moderately long, the femora clavate and finely granulate.

Length $5\frac{1}{10}$, breadth 2 millim.

Hab. PANAMA, Volcan de Chiriqui 3000 feet (*Champion*).—BRAZIL[2], Botafogo[1]; ANTILLES, Guadeloupe[2].

One specimen. The above description will supplement that of Dr. Bergroth.

Fam. HEBRIDÆ.

HEBRUS.

Hebrus, Curtis, Ent. Mag. i. p. 198 (1833); Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 294; Fieber, Europ. Hemipt. pp. 32, 104.

Næogeus, Laporte, Essai d'une Syst. Class. Hémipt. in Guérin's Mag. Zool. 1832, p. 34.

A widely distributed genus containing seven described species*. The type, *H. pusillus* (Fall.), of Europe and N. Africa, has 5-jointed antennæ; but some authors, including Laporte, give the antennæ as 4-jointed, the division between the fourth and fifth joints being not very distinct; others (Douglas and Scott †) mention six joints, the minute jointlet at the base of the third being counted as a true joint. The ventral sutures are indistinct or obliterated in some of the species. The tarsi are 2-jointed. In *H. major*, *H. læviventris*, &c., the males have the venter broadly flattened in the middle, and in the same sex of *H. sulcatus* the intermediate femora are armed with a short tooth. All the Central-American Hebridæ seen by me are winged.

* The *H. americanus* of the Catalogues of Walker and Lethierry and Severin is a *Microvelia*.

† In their figure seven joints are shown.

a. First ventral segment broadly raised in the middle, closing the rostral groove posteriorly; body, legs, and antennæ finely pubescent; elytra with a white wedge-shaped mark at the base of the clavus . . . . . *major*, n. sp.

b. First ventral segment not broadly raised in the middle.

a'. Body, legs, and antennæ clothed with long bristly hairs . . . . . *hirsutus*, n. sp.

b'. Body, legs, and antennæ finely pubescent.

a''. Elytra with a narrow white streak on the clavus, a narrow white streak on the corium, and some indistinct whitish spots on the membrane; pronotum feebly constricted at the sides . . . . . *bilineatus*, n. sp.

b''. Elytra with a long white wedge-shaped mark on the clavus, a white streak on the corium, and four conspicuous whitish spots on the membrane; pronotum feebly constricted at the sides . . . . . *consolidus*, Uhler.

c''. Elytra with a white wedge-shaped mark on the clavus, a pale streak on the corium, and one or two pale spots on the membrane; pronotum deeply constricted at the sides . . . . . *læviventris*, n. sp.

d''. Elytra with an evanescent whitish or pallid mark at the base of the clavus, and a pale streak on the corium, the membrane without distinct spots.

a'''. Antennæ with the basal joint elongate; pronotum deeply longitudinally sulcate; intermediate femora armed with a short tooth in the ♂ . . . . . *sulcatus*, n. sp.

b'''. Antennæ with the basal joint very little longer than the second; pronotum feebly longitudinally depressed along the middle; intermediate femora unarmed in the ♂ . . . . . *concinnus*, Uhler.

1. **Hebrus major**, n. sp. (Tab. VIII. fig. 1.)

♂. Rather elongate, robust; head black, reddish on each side between the eyes and also at the sides in front, the pronotum and scutellum reddish-brown, the elytra brown, the clavus with a broad, wedge-shaped, evanescent, white patch at the base, the nervures of the corium blackish, becoming paler anteriorly, the membrane with a transverse pallid streak near the tip of the corium and a small oblong pallid streak before the apex; under surface blackish, the genital segments testaceous; the antennæ and legs testaceous, the coxæ and trochanters and the base of the femora flavous; the body, legs, and antennæ finely pubescent, the venter thickly clothed with short pallid hairs. Head without distinct median groove; antennæ long and slender, 5-jointed, 1 one-half longer than 2, 3 nearly as long as 1, 4 a little shorter than 2 (5 imperfect). Pronotum strongly constricted at the sides, deeply sulcate down the middle, the two lobes separated by a row of coarse punctures, the posterior lobe with a transverse punctured groove before the base. Scutellum with a fine median carina. Legs rather stout. First ventral segment broadly raised in the middle between the posterior coxæ, closing the rostral groove behind, the following segments broadly flattened along the middle. Meso- and metasternal carinæ prominent.

Length 3 millim.

Hab. Mexico, Orizaba (*Bilimek, in Mus. Vind. Cæs.*).

One example. Differs from all the other species of the family known to me in the broadly raised intercoxal portion of the abdomen, as well as by its comparatively stout legs and large size. In the deeply sulcate pronotum and prominent sternal carinæ it approaches *H. sulcatus*. The antennæ are imperfect.

2. **Hebrus hirsutus,** n. sp. (Tab. VIII. fig. 2.)

♀. Reddish-brown, the depressed portions of the pronotum, the pleura, and under surface with a greyish pruinosity; the elytra with a white wedge-shaped mark on the clavus and a narrow white streak between the two prominent fuscous nervures of the corium; the membrane smoky-brown, with three indistinct whitish spots towards the base and a longitudinal, medially constricted, obscure luteous stripe down the middle; the legs, antennæ, and rostrum testaceous; the body, legs, and antennæ clothed with long, bristly hairs, the hairs on the head, pronotum, and scutellum blackish, the elytra also with a scattered short fine pubescence. Head with a very fine median groove between the eyes; antennæ slender, joint 2 a little shorter than 1 (the other joints broken off). Pronotum strongly constricted at the sides, the anterior lobe depressed and with a few rather coarse punctures, the posterior lobe longitudinally sulcate down the middle anteriorly, and with a transverse groove before the base. Scutellum with a distinct median carina.

Length 2 millim.

Hab. Mexico, La Noria in Sinaloa (*Höge*).

One example. Easily distinguishable by the long bristly hairs on the body, legs, and antennæ. The antennæ are assumed to be 5-jointed.

3. **Hebrus bilineatus,** n. sp. (Tab. VIII. fig. 3.)

♀. Rufo-fuscous, the head in the middle and the depressed lateral portions of the anterior lobe of the pronotum blackish; the elytra with a long narrow white streak on the outer part of the clavus and a narrow white streak between the nervures of the corium, the corium blackish at the apex, the membrane smoky-brown, with four indistinct whitish marks; the connexival margins and the under margins of the pronotum fulvous; the under surface pitchy-black; the legs, coxæ, and trochanters testaceous; the antennæ with joints 1 and 2 testaceous and the others fuscous; the body, legs, and antennæ finely pubescent. Head without median groove; antennæ 5-jointed, moderately long, 3–5 very slender, 1 much longer than 2, 3 and 5 subequal in length, each about as long as 1, 2 and 4 subequal in length. Pronotum moderately constricted at the sides, the posterior lobe deeply sulcate down the middle anteriorly, the depressed subtriangular lateral portions of the anterior lobe demarcated by a line of punctures.

Length 2 millim.

Hab. Mexico, Chapultepec (*Bilimek, in Mus. Vind. Cæs.*).

One example. Easily separable from the allied forms by the two narrow pearly-white streaks at the base of the elytra, the streak on the clavus being much narrower than in the other Central-American species of the genus.

4. **Hebrus consolidus.** (Tab. VIII. fig. 4.)

Hebrus consolidus, Uhler, P. Z. S. 1894, p. 222 [1].

Hab. Guatemala, Paso Antonio (*Champion*); Panama, near the city (*Champion*).—Antilles, Grenada [1].

Two specimens. In this insect the antennæ have the fourth and fifth joints together longer than the third, and the first joint considerably longer than the second; the elytra have a long, bluish-white, sharply defined, wedge-shaped mark on the clavus, a narrow white streak between the nervures of the corium, and three or four conspicuous whitish marks on the membrane; the knees and tips of the tarsi are

slightly infuscate; and the pronotum is somewhat feebly constricted at the sides, the two lobes not being sharply separated.

H. parvulus, Stål, from Rio Janeiro (the type of which is before me), is a very closely allied form; but it has a rather more elongate basal joint to the antennæ, the two lobes of the pronotum more distinctly separated, the wedge-shaped mark on the clavus shorter, the white streak between the nervures of the corium indistinct, and the whitish marks on the membrane less conspicuous. *H. consolidus* was found in plenty in the island of Grenada by Mr. H. H. Smith.

5. **Hebrus læviventris**, n. sp. (Tab. VIII. fig. 5.)

Rather elongate, narrow, fuscous or rufo-fuscous, the pronotum with the anterior margin and a narrow space down the middle indeterminately fulvous or flavous; the under surface testaceous or flavous, with the sides of the venter broadly blackish; the antennæ testaceous, paler at the base; the coxæ, trochanters, and legs flavous, the knees slightly darker; the elytra smoky-brown, with a long, wedge-shaped, silvery-white mark at the base of the clavus and a long narrow pallid streak between the nervures of the corium, the latter black at the apex, the membrane with one or two obscure luteous oval spots along the middle, these being sometimes connected; the body, legs, and antennæ finely pubescent. Head without distinct median groove; antennæ 5-jointed, 3–5 very slender, 2 a little shorter than 1, 3 elongate, 4 and 5 subequal in length, together slightly longer than 3. Pronotum deeply constricted at the sides, and with a fine transverse groove before the base, the anterior and posterior lobes sharply separated, the latter depressed along the middle in front; the surface with scattered punctures, the line of demarcation between the two lobes indicated by a few deeper impressions. Venter smooth and shining, the sutures between the segments almost obliterated.

♂. Second and third ventral segments depressed in the middle.

Length $1\frac{7}{8}$–$2\frac{1}{8}$ millim.

Hab. Panama, Tolé (*Champion*).

This species resembles *Merragata leucosticta* in colour, but it is more elongate, and has 5-jointed antennæ; the pronotum is still more deeply constricted at the sides, with the two lobes more sharply separated and the posterior lobe depressed along the middle. The nine specimens obtained are in a bad state of preservation, one only having the antennæ entire.

6. **Hebrus sulcatus**, n. sp. (Tab. VIII. figg. 6, ♂; 6 *a*, antenna; 6 *b*, intermediate leg, ♂.)

Rather elongate, black, the pronotum with the disc rufous or fulvous and the anterior margin testaceous or flavo-testaceous; the head reddish-brown on each side between the eyes, in one specimen entirely of that colour; the antennæ, rostrum, legs, coxæ, and trochanters, and the apex of the venter, flavous or flavo-testaceous, the knees, tibiæ, and outer joints of the antennæ sometimes a little darker; the elytra smoky-brown, with the clavus and the narrow space between the two longitudinal nervures of the corium pale brown, the membrane with a narrow pallid transverse streak near the apex of the corium; the body, legs, and antennæ clothed with short fine pubescence, the venter densely clothed with short pallid hairs, the entire under surface with a greyish pruinosity. Head with a very fine median groove; antennæ about three-fourths the length of the body, 5-jointed, 3–5 very slender, 1 elongate, more than one-half longer than 2, 3 about as long as 1, 4 and 5 equal in length, together fully one-half longer than 3. Pronotum strongly constricted at the sides, and with a fine transverse groove before the base; the posterior lobe deeply sulcate down the middle; the surface with scattered

punctures. Scutellum with a fine median carina. Meso- and metasternal carinæ prominent, the carinæ continued on to the first ventral segment.

♂. Intermediate femora armed with a short tooth near the base; second and third ventral segments flattened in the middle.

Length $2\frac{1}{10}$–$2\frac{1}{2}$ millim. (♂ ♀.)

Hab. PANAMA, Bugaba and Caldera in Chiriqui (*Champion*).

Three males and two females. This species may be known by the deeply, longitudinally sulcate disc of the pronotum, in connection with the long basal joint of the antennæ, the rather elongate body, &c. The apical two joints of the antennæ are together much longer than the third. The rostral groove is limited on each side by a prominent ridge, which is continued on to the first ventral segment.

7. **Hebrus concinnus.**

Hebrus concinnus, Uhler, P. Z. S. 1894, p. 221 [1].

Hab. NORTH AMERICA, Southern States [1].—GUATEMALA, Paso Antonio and San Géronimo (*Champion*); PANAMA, Peña Blanca (*Champion*).—ANTILLES [1], Grenada [1].

Six specimens, agreeing with Uhler's types in the British Museum. *H. concinnus* appears to be a common species in the Atlantic States of North America, occurring also in California. Apterous individuals are noticed by Prof. Uhler.

MERRAGATA.

Merragata, Buchanan White, Ann. & Mag. Nat. Hist. (4) xx. p. 113 (1877).

Lipogomphus, Berg, Hemipt. Argent. p. 286 (1879), and Addend. et Emend. p. 116; An. Soc. Cient. Arg. ix. p. 14.

The three Central-American species referred to this genus differ from *Hebrus* in having the antennæ 4-jointed *, *i. e.* the fourth and fifth joints are fused into one, without trace of a suture between them. In *M. hebroides*, the type of the genus *Merragata*, the joints 1–3 of the antennæ are subequal in length; the other two species have an elongate third joint. The tarsi are 2-jointed †.

Antennæ with joints 1–3 subequal, 4 rather stout and fusiform . . . . *hebroides,* B. White.

Antennæ with joint 3 slender and very much longer than 2, 4 slender and subfusiform.

Elytra with a silvery-white wedge-shaped mark on the clavus, and a pale streak on the corium; pronotum deeply constricted at the sides . . . . . *leucosticta,* n. sp.

Elytra with a pallid or whitish evanescent mark on the clavus and a pale streak on the corium; pronotum moderately constricted at the sides. *brevis,* n. sp.

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* Buchanan White describes the antennæ as 5-jointed, he counting the minute jointlet at the base of the third joint as a true joint.

† Berg describes the posterior tarsi as 3-jointed, but this cannot be correct.

1. **Merragata hebroides.** (Tab. VIII. figg. 7, ♂; 7 *a*, antenna.)

Merragata hebroides, Buch. White, Ann. & Mag. Nat. Hist. (4) xx. p. 114[1].

♂. Short, black, the head reddish between the eyes, the pronotum with two, posteriorly confluent, rufo-ferruginous spots on the posterior lobe; the elytra with a large triangular white patch on the clavus and a very narrow whitish streak between the nervures of the corium, the latter black at the apex, becoming paler towards the base, the membrane brown, with three large whitish spots; the antennæ testaceous, with the apical joint infuscate; the legs testaceous, with the tips of the tarsi (the claws excepted) blackish; the under surface with a bluish-grey pruinosity; the body, legs, and antennæ finely pubescent. Head with a fine median groove; antennæ very short, less than twice the length of the head, 4-jointed, 1–3 subclavate and subequal in length, 4 longer and considerably stouter than 3, fusiform. Pronotum rugulose, moderately constricted at the sides, longitudinally sulcate down the middle anteriorly, the two lobes not distinctly separated. Scutellum distinctly carinate. Legs slender. Venter broadly depressed along the middle.

Length $1\frac{9}{10}$ millim.

Hab. Mexico, Chapultepec (*Bilimek, in Mus. Vind. Cæs.*).—Hawaiian Is.[1]

One specimen only of this peculiar little species has been seen; it agrees perfectly with the Hawaiian example (♀) in the British Museum. The very short antennæ, with joints 1–3 subequal in length and the fourth longer, stouter, and fusiform, separates it at once from all the other members of the family described here. It is probable that the species has been introduced into the Hawaiian Islands.

2. **Merragata leucosticta,** n. sp. (Tab. VIII. figg. 8; 8 *a*, antenna.)

Short, rufo-fulvous, slightly mottled with fuscous, the venter black, except at the apex; the elytra smoky-brown, with a silvery-white wedge-shaped mark at the base of the clavus, the base of the corium and the narrow space between the nervures pale brown, the membrane with several indistinct pallid spots; the antennæ obscure testaceous; the rostrum, legs, coxæ, and trochanters flavo-testaceous; the body, legs, and antennæ clothed with rather long, fine hairs. Head with a distinct median groove; antennæ 4-jointed, 3 and 4 very slender, 1 and 2 subequal, 3 much longer than 2, 4 much longer than 3. Pronotum deeply constricted at the sides, the disc without median groove, the surface with scattered punctures. Scutellum with indications of a median ridge, subtruncate behind.

Length $1\frac{3}{4}$ millim. (♀.)

Hab. Guatemala, San Gerónimo (*Champion*).

Three examples. Shorter than *Hebrus consolidus*, Uhler, the pronotum much more strongly constricted at the sides, the silvery-white wedge-shaped mark on the clavus shorter, the corium without a white streak, the membrane with indistinct paler spots, the pubescence longer, the antennæ 4-jointed.

3. **Merragata brevis,** n. sp. (Tab. VIII. fig. 9.)

Short, black or fuscous, the head fulvous in front and on each side between the eyes, and sometimes with a fulvous median line; the pronotum more or less mottled with fulvous or rufo-fulvous, the anterior margin constantly fulvous; the elytra with a whitish, wedge-shaped, evanescent mark at the base of the clavus, and a pallid streak between the nervures of the corium, the nervures themselves black at the apex, becoming brownish or fulvous towards the base, the membrane fuscous, usually with some paler spots; the antennæ testaceous or rufo-testaceous, with joints 1 and 2 sometimes darker at the apex; the under surface black, with a greyish pruinosity, the genital segments flavous in the male; the antennæ, rostrum, coxæ, trochanters, and legs flavous; the body, legs, and antennæ finely pubescent. Head with a distinct median groove; antennæ 4-jointed, 3 and 4 very slender, 2 slightly shorter than 1,

3 elongate, 4 as long as or slightly longer than 3. Pronotum moderately constricted at the sides, the posterior lobe slightly depressed along the middle, the surface impressed with rather coarse scattered punctures. Venter convex in both sexes.

Length $1\frac{1}{2}$–2 millim. (♂ ♀.)

Hab. MEXICO, Ventanas in Durango, La Noria in Sinaloa (*Höge*); GUATEMALA, San Gerónimo, Guatemala city, Rio Naranjo (*Champion*); PANAMA, Tolé, Panama city (*Champion*).

This is apparently the commonest species of the family in Central America; it was found in plenty in the vicinity of the city of Guatemala. The insect is very like *Hebrus concinnus*, Uhler; but it has 4-jointed antennæ, and the head is constantly rufescent at the sides between the eyes. The form of the antennæ seems to be quite constant. The venter is similarly formed in both sexes. A specimen from Guatemala city is figured.

MESOVELIA.

Mesovelia, Mulsant et Rey, Ann. Soc. Linn. Lyon, 1852, p. 138; Fieber, Europ. Hemipt. pp. 33, 105 (1861).

Fieberia, Jakowleff, Bull. Mosc. xlviii. 1, p. 276 (1874).

Of the four known species of *Mesovelia*, two are American, the genus ranging from the Eastern United States to the Amazons valley, and occurring also in some of the Antillean islands.

1. **Mesovelia mulsanti.** (Tab. VIII. figg. 10, undeveloped ♂; 11, winged ♀.)

Mesovelia mulsanti, Buch. White, Trans. Ent. Soc. Lond. 1879, p. 268[1].

Mesovelia bisignata, Uhler, in Kingsley's Stand. Nat. Hist. ii. p. 273, fig. 324 (1884)[2]; P. Z. S. 1893, p. 706[3]; 1894, p. 217[4]; Proc. Calif. Acad. Sci. (2) iv. p. 289[5].

Hab. NORTH AMERICA, Eastern United States[2 4], Texas, Lower California[5].—MEXICO, Teapa in Tabasco (*H. H. Smith*); PANAMA, near the city (*Champion*).—AMAZONS[1]; ANTILLES, St. Vincent[3], Grenada[4].

Two fully-developed examples (♀) were found by Mr. Smith at Teapa. The fourteen specimens, including both sexes, found by myself in the vicinity of the city of Panama are without wings and have abbreviated elytra, the membrane being undeveloped. They do not differ from the Antillean specimens named *M. bisignata* by Prof. Uhler, which fit the description of *M. mulsanti*, Buch. White. I have seen a winged specimen from Texas (*Belfrage*).

In fresh specimens of this insect the femora above, the hind tibiæ within and without, and the intermediate tibiæ externally, are set with long blackish spines or setæ, the intermediate tibiæ have some very long hairs on the inner side near the apex, and the anterior and intermediate femora are armed on the inner side with a series of very short, fine spines, with longer spines intermixed.

Fam. HYDROMETRIDÆ.

The three subfamilies of Hydrometridæ are all represented in Central America: the Hydrometrinæ by three, and the Veliinæ and Gerrinæ by numerous species. The Veliinæ include many species of *Rhagovelia* and *Microvelia*, and a few of *Velia*. With one exception, *Trochopus salinus*, all the Central-American Hydrometridæ known to me live upon the surface or margins of freshwater pools or streams.

Subfam. *HYDROMETRINÆ*.

HYDROMETRA.

Hydrometra, Latreille, Précis des caract. gén. des Ins. p. 86 (1796).
Limnobates, Burmeister, Handb. der Ent. ii. p. 210 (1835).

A genus containing about a dozen described species, and generally distributed. They are slender, stick-like, sluggish insects, and have the habit of walking about slowly on the surface of the water in sheltered spots. Five American species have been described and one other is now added, but it is possible that these are not all specifically distinct. The Central-American forms may be separated thus:—

Rostrum not extending beyond the eyes; antennæ about two-thirds the length of the body.
  Ante-ocular portion of the head more than twice the length of the post-ocular portion, the head moderately dilated at the apex and slightly thickened at the base . . . . . *caraiba*, Guér.
  Ante-ocular portion of the head not more than twice the length of the post-ocular portion, the head considerably dilated at the apex and thickened at the base . . . . . *lentipes*, n. sp.
Rostrum nearly reaching the base of the head; antennæ one-third the length of the body; ante-ocular portion of the head twice as long as the post-ocular portion . . . . . *mensor*, B. White.

1. Hydrometra caraiba.

Hydrometra caraiba, Guér. in Ramon de la Sagra's Hist. fis. polit. y nat. de Cuba, Ins. p. 173[1].
Gerris caraiba, Leth. et Sev. Cat. gén. Hémipt., Hétéropt. iii. p. 60[2].

Hab. Panama, David, Panama city (*Champion*).—Antilles, Cuba [1 2].

A winged female and a brachypterous male from the State of Panama agree sufficiently well with Guérin's description of *H. caraiba*. They have the ante-ocular portion of the head nearly or quite two and one-half times longer than the post-ocular portion; the rostrum does not extend backwards beyond the eyes; the pronotum has a whitish or grey, black-bordered median line, and its surface is very distinctly punctured; the metanotum is as long as the pronotum; the hind coxæ are separated from the intermediate coxæ by a space about one and a half times greater than that

between the anterior and intermediate coxæ; the abdomen is very elongate; the antennæ in the male are about two-thirds the length of the body, with joint 3 three times as long as 2, and 4 one-third longer than 3; the elytra in the winged female nearly reach the apex of the fourth dorsal segment. The male measures $13\frac{1}{2}$ (head 4, abdomen $5\frac{1}{4}$), the female 16 (head $4\frac{1}{2}$, abdomen $6\frac{1}{4}$) millimetres in length; Guérin's single specimen was considerably more elongate. *H. metator*, Buch. White, from the Amazons, must be a very closely allied form; it (♂) is described as having the antennæ as long as the body.

2. **Hydrometra lentipes,** n. sp.

Black or pitchy-black, with a bluish-grey pruinosity, the base of the head and of the first joint of the antennæ rufescent; the legs brownish, the coxæ and trochanters paler; the connexivum sometimes with a fulvous stripe; the elytra pale brown, with blackish-brown nervures; the pronotum with a greyish-white median line; the under surface (in fresh specimens) clothed with greyish-white pubescence. Head considerably thickened at the base, as well as at the apex, appearing very narrow before and behind the eyes, the ante-ocular portion about twice as long as the post-ocular portion; rostrum not reaching beyond the eyes; antennæ two-thirds the length of the body, joint 2 about twice as long as 1, 3 nearly three times as long as 2, 4 nearly twice as long as 3. Pronotum with a few scattered punctures and a depressed median line.

Length $9\frac{1}{2}$–$10\frac{1}{2}$, of the head 3–$3\frac{1}{3}$, of the abdomen 4–$4\frac{1}{10}$ millim. (♂ ♀.)

Hab. GUATEMALA, Rio Naranjo and Paraiso (*Champion*).

An apterous pair and a winged male, all from the low country bordering the Pacific Ocean. Very like the insect here referred to *H. caraiba*, but less elongate and considerably smaller; the head narrower, more dilated in front, more thickened at the base, with the ante-ocular portion relatively shorter; the abdomen less elongate. *H. lentipes* is also very like the Palæarctic *H. stagnorum* (Linn.), but it has a differently shaped head, a shorter rostrum, and longer antennæ. The head is thickened at the base in all three examples. *H. lineata*, Say, is probably a nearly allied form, but specimens of it are not available for comparison.

3. **Hydrometra mensor.**

Hydrometra mensor, Buch. White, Trans. Ent. Soc. Lond. 1879, p. 267 (♂) [1].

Apterous form. ♀. Brownish-testaceous, the apices of the tibiæ and of the two basal joints of the antennæ, the tarsi, the eyes, and the inner and outer raised connexival margins blackish-brown, the pronotum with indications of a paler median line. Head scarcely thickened at the base, with the ante-ocular portion about twice as long as the post-ocular portion; rostrum nearly reaching the base of the head; antennæ comparatively short, about one-third the length of the body, joint 2 twice as long as 1, 3 twice as long as 2, 4 much longer than 2. Metanotum much shorter than the pronotum.

Length $11\frac{1}{2}$, of the head 3, of the abdomen $5\frac{3}{4}$ millim.

Hab. PANAMA, David (*Champion*).—AMAZONS, Manaos [1], Santarem.

One specimen, nearly agreeing with a winged female from Santarem in the British Museum. Buchanan White did not mention the form of the antennæ. The two sub-elongate elevations near the posterior margin of the pronotum (visible in the Santarem

specimen and mentioned by Buchanan White) are probably present in the winged form only. This insect is closely allied to the Palæarctic *H. stagnorum* (Linn.), differing from it in colour and in having shorter antennæ, with a relatively shorter third joint. Both species have the rostrum extending almost to the base of the head. The antennæ are only about half the length of those of *H. caraiba*. The elytra in the winged female from Santarem nearly reach the apex of the fourth dorsal segment. *H. argentina*, Berg, is coloured like *H. mensor*, but it is described as having the antennæ formed as in *H. stagnorum*. Some North-American specimens in the British Museum, received from Doubleday, are very like *H. mensor*.

Subfam. *VELIINÆ*.

MICROVELIA.

Microvelia, Westwood, Ann. Soc. Ent. Fr. iii. p. 648 (1834); Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 421.

Hydroessa, Burmeister, Handb. der Ent. ii. p. 213 (1835); Fieber, Europ. Hemipt. pp. 33, 104; Stål, Hemipt. Afric. iii. p. 167.

Veliomorpha, Carlini, Ann. Mus. Genova, xxxv. p. 120 (1895) *.

A very widely distributed genus, containing seventeen described species. The eight now added are all treated as new, two of them being represented by apterous individuals only. Westwood referred two species to it—*M. pulchella*, Westw., from the Island of St. Vincent, and the European *M. pygmæa* (Duf.); his figures are taken from the Antillean insect, which has a long apical joint to the antennæ. In one of the Antillean species, *M. longipes*, Uhler, from Grenada, the hind legs are very elongate.

a. Posterior tibiæ without long bristly hairs.
  a'. Body subparallel or subfusiform; tibiæ slender.
    a''. Antennæ with joints 1 and 2 subequal in length.
      a'''. Antennæ and legs entirely testaceous; elytra mottled with whitish; pronotum without median ridge . . . . . *flavipes*, n. sp.
      b'''. Antennæ and legs not entirely testaceous.
        *a*⁴. Fourth antennal joint as long as the third.
          *a*⁵. Antennæ moderately slender, with joint 3 slightly longer than 2; pronotum with a median ridge; elytra mottled with pale brown; posterior femora minutely toothed in the ♂ . *paludicola*, n. sp.
          *b*⁵. Antennæ very slender, with joint 3 much longer than 2.
            *a*⁶. Elytra with indistinct greyish streaks; pronotum with a faint median ridge; posterior femora minutely toothed in the ♂ . . . . . *panamensis*, n. sp.

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* Dr. Carlini (*loc. cit.*) describes the tarsi of *Microvelia* as 2-jointed; but most authors give them as 2-, 3-, 3-jointed, counting the very short rudimentary joint of the intermediate and hind pairs as a true joint. He has almost certainly overlooked the short basal joint of the first pair in his genus *Veliomorpha*.

b^6. Elytra with distinct silvery-white marks; pronotum without median ridge; posterior femora unarmed in the ♂ . . *torquata*, n. sp.

b^4. Fourth antennal joint a little shorter than the third; the antennæ themselves very long and slender, with joint 3 much longer than 2; elytra with distinct pale brown streaks; pronotum (in the winged form) with a median ridge . . . . . *circumcincta*, n. sp.

b''. Antennæ with joint 2 shorter than 1, 3 much longer than 2, and 4 longer than 3; elytra with several conspicuous silvery-white marks; legs and antennæ very slender; body narrow . . . . . *albonotata*, n. sp.

b'. Body obovate; tibiæ rather stout: apterous form only known . . . *rufescens*, n. sp.

b. Posterior tibiæ with long bristly hairs on their outer edge; body very narrow (♂), obovate (♀): apterous form only known . . . . . *setipes*, n. sp.

1. **Microvelia flavipes**, n. sp. (Tab. VIII. fig. 12, winged ♀.)

Winged form. ♀. Rather short, narrowing behind, rufo-fuscous, the pronotum with the posterior margin except in the middle, the lateral margins beneath, and a transverse fascia in front, the connexival margins, the propleura, rostrum, legs, coxæ, and antennæ, and the venter, except at the sides, flavous or testaceous; the elytra with fuscous nervures, the cells pale brown, mottled with whitish; the under surface and pleura with a greyish pruinosity; the body, legs, and antennæ very finely pubescent, the pronotum with a few silvery hairs at the sides anteriorly, the second, fourth, and fifth connexival segments also with some silvery hairs. Head with a smooth impressed median line; antennæ with joints 1 and 2 long and slender, subequal in length (3 and 4 broken off). Pronotum distinctly punctured posteriorly, without trace of median ridge, the posterior portion rounded at the apex. Elytra with prominent nervures. Legs slender, long.

Length $3\frac{1}{10}$, breadth $1\frac{1}{4}$ millim.

Hab. Mexico, Orizaba (*Bilimek, in Mus. Vind. Cæs.*).

One specimen. Very like *M. paludicola*, but with entirely pale legs and antennæ, and also a little less elongate in shape, the connexivum broader, the pronotum without trace of median ridge, the venter in great part testaceous, the elytra mottled with whitish. The pale legs, &c., separate it from *M. americana*, Uhler.

2. **Microvelia paludicola**, n. sp. (Tab. VIII. fig. 13, winged ♀.)

Winged form. Rather short, narrowing behind; black or brownish-black, the posterior margin of the pronotum (except in the centre), and also the lateral margins beneath, the rostrum, coxæ, and trochanters, and the connexival margins (the sutures excepted), flavous, the pronotum with a narrow transverse fulvous band in front; the antennæ and elytra fuscous, the latter slightly mottled with pale brown; the legs fuscous, with the base of the femora flavous; the under surface and pleura with a bluish-grey pruinosity, and clothed with short, fine, silvery pubescence; the upper surface very finely pubescent, the pronotum with some silvery hairs towards the sides before and behind the middle, the second connexival segment also with silvery hairs; the costal margins of the elytra ciliate at the base; the legs and antennæ finely pubescent. Head with a smooth, impressed median line; antennæ much shorter than the body, moderately slender, joints 1 and 2 subequal in length, 3 slightly longer than 2, 4 as long as and distinctly stouter than 3. Pronotum obtuse at the apex behind, with a faint median ridge. Elytra with prominent nervures. Legs slender, long, the femora slightly thickened towards the base.

♂. Posterior femora armed with from two to five very minute projecting teeth; sixth ventral segment arcuate-emarginate at the apex; first genital segment depressed in the middle.

Length $2\frac{3}{4}$–$3\frac{1}{2}$, breadth 1–$1\frac{1}{2}$ millim. (♂ ♀.)

Hab. Guatemala (*Rodriquez, in Mus. Roy. Belg.*: ♀), Dueñas (*Champion*: ♂ ♀).

Three males and two females. In this insect the elytra are slightly mottled with pale brown, and the antennæ are a little shorter and stouter than in the other species here described. It is relatively more elongate than the winged form of *M. circumcincta*. Our figure is taken from the specimen in the Brussels Museum.

3. **Microvelia panamensis,** n. sp. (Tab. VIII. fig. 14, winged ♂.)

Winged form. ♂. Short, much narrowed behind; black, the basal margin of the head obscure fulvous, the pronotum with a narrow transverse band in front, the posterior margin (except in the centre), and the lateral margins beneath, the venter along the middle and at the apex, the connexivum (the sutures excepted), the trochanters, coxæ, and rostrum, flavous; the legs brownish, with the extreme base of the femora flavous; the antennæ fuscous; the elytra blackish-brown, with greyish streaks, the nervures darker; the under surface and pleura with a bluish-grey pruinosity, and clothed with short, fine, scattered silvery pubescence; the upper surface very finely pubescent, the pronotum with a few silvery hairs on the lateral portions of the anterior lobe and at the sides posteriorly; the antennæ and legs finely pubescent. Head with a smooth, fine, impressed median line; antennæ long and very slender, nearly as long as the body, joints 1 and 2 subequal in length, 3 much longer than 2, 3 and 4 nearly equal in length. Pronotum obtuse at the apex behind, with indications of a median ridge anteriorly. Elytra with prominent nervures. Legs slender, long, the femora slightly thickened towards the base.

♂. Posterior femora armed with four or five very minute projecting teeth.

Apterous form. ♀. Short, fusiform, the disc of the pro- and mesonotum, and the terminal dorsal segments of the abdomen, obscure ferruginous; the upper surface with scattered silvery hairs, the apical half of the abdomen bordered with silvery hairs at the sides, the penultimate dorsal, and the second, fourth, and fifth connexival segments almost covered with silvery hairs.

Length $2\frac{1}{2}$, breadth 1 millim.

Hab. PANAMA, David, Volcan de Chiriqui (*Champion*).

A winged pair from David and an apterous female from the Volcan de Chiriqui. Allied to *M. torquata*, but with much stronger nervures to the elytra, the elytra without distinct spots, the pronotum with a few silvery hairs only at the sides in front, the legs darker, the posterior femora in the male armed with several minute projecting teeth.

4. **Microvelia torquata,** n. sp. (Tab. VIII. fig. 15, winged ♂.)

Winged form. Rather short, narrowing behind, black, the anterior and posterior margins of the pronotum, as well as the lateral margins beneath, the connexival margins, the coxæ, and trochanters flavous; the under surface flavous, with a blackish submarginal stripe on each side of the venter, extending on to the pleura; the antennæ brown, paler at the base in one specimen; the legs flavous, the femora with indications of a brownish transverse band towards the apex, the tibiæ broadly brownish in the middle, and the tarsi slightly infuscate; the elytra brownish-black, with six oblong whitish streaks; the body clothed with very short, fine, yellowish pubescence, a narrow space across the front of the pronotum, and the meso- and metapleura, clothed with glistening silvery pubescence; the antennæ and legs sparsely and very finely pubescent. Head with a fine, smooth, impressed median line; antennæ very slender, nearly as long as the body, joints 1 and 2 subequal in length, 3 rather more than one-half longer than 2, 3 and 4 equal in length. Pronotum obtuse at the apex behind, without trace of median ridge. Elytra with rather feeble nervures. Legs slender, moderately long, the femora slightly thickened towards the base, the anterior pair strongly swollen in their basal half in the male.

Length $2\frac{1}{4}$–$2\frac{1}{2}$, breadth $\frac{9}{10}$–1 millim. (♂ ♀.)

Hab. GUATEMALA, San Gerónimo (*Champion*).

Two specimens. Distinguishable amongst its allies by the silvery-pubescent pronotal collar, the meso- and metapleura also being clothed with silvery pubescence. The whitish marks on the elytra are not so distinct as in *M. albonotata*. The neuration of the elytra is more feeble than in *M. panamensis*. The posterior femora are unarmed in the male. The anterior femora are much swollen in this sex.

5. **Microvelia circumcincta,** n. sp. (Tab. VIII. fig. 16, apterous ♀.)

Winged form. ♀. Rather short, narrowing behind, black, the pronotum with a narrow transverse fulvous band in front; the posterior margin of the pronotum, except in the centre, and also the lateral margins beneath, the prosternum, rostrum, coxæ, and trochanters, the connexival margins, and the middle and apex of the venter, flavous; the antennæ testaceous, with the apical joint darker; the legs fusco-testaceous, with the base of the femora flavous; the elytra brownish-black, streaked and spotted with pale brown; the under surface and pleura with a bluish-grey pruinosity, and clothed with short, fine, scattered silvery pubescence; the upper surface clothed with a fine pallid pubescence; the legs and antennæ finely pubescent. Head with a smooth, fine, impressed median line; antennæ long and very slender, shorter than the body, joints 1 and 2 subequal in length, 3 much longer than 2, 4 a little shorter than 3 and slightly longer than 2. Pronotum obtuse at the apex behind, with a distinct median ridge anteriorly. Abdomen and elytra comparatively short, the latter with prominent nervures. Legs slender, moderately long, the femora slightly thickened towards the base.

Apterous form. ♀. Fusiform, the dorsal segments of the abdomen ferruginous down the centre, the upper surface with a few scattered silvery hairs.

Length $2\frac{3}{4}$–$3\frac{1}{4}$, breadth $1\frac{1}{8}$–$1\frac{1}{3}$ millim.

Hab. GUATEMALA, San Gerónimo in Vera Paz (*Champion*).

One winged and two apterous examples. Allied to *M. paludicola*, but less elongate, the elytra shorter and distinctly streaked with pale brown, the antennæ longer and more slender, with the third joint slightly longer than the fourth. Also very like the North-American *M. americana*, Uhler (winged and apterous specimens of which have been sent me by Prof. Uhler), differing from that insect in the form of the antennæ (in *M. americana* joint 4 is longer than 3 and joint 2 is shorter than 1, as in the Antillean *M. pulchella*, Westw.).

6. **Microvelia albonotata,** n. sp. (Tab. VIII. fig. 17, winged ♂.)

Winged form. ♂. Moderately elongate, narrow; black, a narrow transverse line in front of the pronotum, and also the lateral margins beneath, the rostrum, trochanters, and coxæ, and the connexival margins, flavous; the head with two posteriorly coalescent stripes between the eyes, and the pronotum with an evanescent median line anteriorly, rufo-fulvous; the elytra brown, with two long oblique streaks extending from the base downwards, a long streak beyond these, a rounded spot near the costa beyond the middle, and an oval spot at the apex, silvery-white; the antennæ brown, paler at the base; the legs brownish, with the femora indeterminately flavous at the base; the body very finely and sparsely pubescent, the costal margins of the elytra ciliate towards the base, the under surface with a bluish-grey pruinosity; the antennæ and legs pubescent, the antennæ also with some longer hairs. Antennæ very slender, not nearly so long as the body, joint 1 rather more than one-half longer than 2, 2 short, 3 about twice as long as 2, very slender, 4 much longer than 3. Pronotum rounded at the apex behind, with indications of a faint median ridge. Elytra with rather feeble nervures. Legs very slender, moderately long.

Length $2\frac{1}{4}$, breadth $\frac{7}{8}$ millim.

Hab. Guatemala, Dueñas (*Champion*).

One specimen only of this handsome little species was obtained. It approaches *M. modesta*, Uhler, from the Island of Grenada, but has shorter legs. The elytra are somewhat immature and creased, but they appear to have each five silvery-white spots or streaks. The head is without an impressed median line.

M. mimula, Buch. White, from the Amazons, and *M. signata*, Uhler, from Lower California, are also allied forms.

7. **Microvelia rufescens,** n. sp. (Tab. VIII. fig. 18, apterous specimen.)

Apterous form. Obovate, rather narrow, convex beneath; fuscous or fusco-ferruginous, the pleura and sides of the venter blackish, the connexivum above and beneath obscure ferruginous; the antennæ, coxæ, trochanters, and legs testaceous or flavo-testaceous; the upper surface thickly and uniformly clothed with brownish pubescence; the under surface greyish-pruinose and clothed with pallid pubescence; the legs and antennæ very finely pubescent. Head with indications of a very fine impressed median line in front; antennæ more than half the length of the body, slender, joint 2 shorter than 1, 3 very slender and nearly twice as long as 2, 4 slightly longer than 3, pointed at the tip. Legs moderately long, comparatively stout, the tibiæ included.

Length $2\frac{1}{3}$–$2\frac{1}{2}$, breadth (of the abdomen) 1–$1\frac{1}{4}$ millim.

Hab. Guatemala, Dueñas (*Champion*).

Three specimens, apparently two males and one female. The supposed female is more convex than the others, and has the short genital segments not visible from beneath. In the males (?) the genital segments are narrowly exposed above and beneath. This insect has stouter tibiæ than any of the other *Microveliæ* here described, and the body is obovate, instead of fusiform, the species approaching in this respect the European *M. pygmæa* (Duf.).

8. **Microvelia setipes,** n. sp. (Tab. VIII. fig. 19, apterous ♂.)

Apterous form. ♂. Elongate, narrow, narrowing in front and behind, black or blackish-fuscous, the pronotum with a transverse rufo-fulvous band in front; the connexivum, the pleura, the middle of the meso- and metanotum and also of the dorsal segments of the abdomen, and the venter, except at the sides, obscure ferruginous; the rostrum flavous, with the apical joint black; the coxæ and trochanters flavous; the legs brownish, with the femora flavous or testaceous; the antennæ fuscous, with the base of the first joint testaceous; the under surface and pleura with a bluish-grey pruinosity; the body, legs, and antennæ finely pubescent, the sides of the metanotum and the dorsal surface of the abdomen with a good deal of silvery pubescence, the silvery hairs on the first three dorsal segments forming a large patch, the posterior tibiæ with a row of long bristly hairs on their outer edge. Head with a smooth impressed median line; antennæ about half the length of the body, joints 1 and 2 subequal in length, 3 and 4 each much more elongate, subequal in length, 4 rather stout and fusiform. Legs long, the femora rather stout. Sixth ventral segment feebly arcuate-emarginate at the apex.

Apterous form. ♀. Elongate-obovate, flattened above, the venter very convex; the dorsal abdominal segments very little wider than the connexival segments, the latter sloping downwards externally.

Length $2\frac{1}{2}$–3; breadth, ♂ $\frac{7}{8}$, ♀ $1\frac{1}{4}$ millim.

Hab. Mexico, Chapultepec and Orizaba (*Bilimek, in Mus. Vind. Cæs.*).

Three males and a single gravid female, evidently belonging to the same species. Differs from all the other Central-American species described here in the setose posterior tibiæ, a character common to *M. longipes*, Uhler, and other Antillean forms.

RHAGOVELIA.

Rhagovelia, Mayr, Verh. zool.-bot. Ges. Wien, xv. p. 445 (1865); Reise der Novara, Hemipt. p. 180; Signoret, Bull. Soc. Ent. Fr. 1877, p. liv; Carpenter, Ent. Monthly Mag. xxxiv. p. 109.
Bæcula, Stål, Hemipt. Afric. iii. p. 167 (1865).
Neovelia, Buchanan White, Journ. Linn. Soc., Zool. xiv. p. 487 (1879).

Of the ten described species of this genus, all but three are American; eight others are now added from within our limits. *Rhagovelia* is well characterized by the 3-jointed tarsi *, and the long, deeply-fissured, terminal joint of the intermediate tarsi. In this fissure there is a series of long ciliated hairs, arising from a common stem, which are probably extended, fan-like, when the insect moves about on the surface of the water; these hairs are sometimes partly extended in dried specimens, but they are usually hidden within the fissure. All the true *Rhagoveliæ* live upon the surface of fresh water, the single described salt-water form, *R. plumbea*, Uhler (=*Trochopus marinus*, Carp.), from the Antilles and Florida, belonging to *Trochopus*, to which a second species is here added. In the apterous specimens the pronotum is usually extended backward so as to cover, and to appear fused with, the mesonotum; but in *R. tenuipes* (as in the two species of *Trochopus*) there is a well-defined suture across the pronotum towards the apex, reducing it to a short lobe. In the winged examples the backward growth of the pronotum is much more pronounced, the posterior portion being often produced into a long spiniform process. In two of the Central-American species, as well as in the Antillean *R. elegans*, Uhler, the posterior tibiæ are armed with a long hook at the apex.

The American species known to me may be thus differentiated :—

a. Posterior tibiæ with or without a straight spur at the apex.
  a'. Penultimate joint of the intermediate tarsi not or very little longer than the apical joint; elytra extending to a little beyond the abdomen, with regular longitudinal nervures; pronotum (in the winged forms) acute or produced into a spiniform process behind; abdomen moderately long.
    a''. Posterior femora more or less incrassate, at least in the ♂.
      a'''. Intermediate femora not constricted at the middle.
        *a*⁴. Posterior femora greatly incrassate and dentate, and the posterior tibiæ also conspicuously dentate or denticulate, in the ♂.
          *a*⁵. Posterior legs moderately elongate; the tibiæ strongly sinuous in the ♂.
        *a*⁶. Anterior tibiæ not dilated in the ♂.
          *a*⁷. Posterior femora enormously incrassate and multidentate, and the posterior tibiæ armed with three long teeth, in the ♂ . . . . . *crassipes*, n. sp.

* Buchanan White states that in *Neovelia* the tarsi are 2-, 3-, 1-jointed, but this is certainly a mistake.

b^7. Posterior femora strongly incrassate and multidentate, and the posterior tibiæ armed with slightly longer teeth beyond the middle, in the ♂ . . . . *varipes*, n. sp.

b^6. Anterior tibiæ greatly dilated and excavate beneath in the ♂ . . . . . [*collaris*, Burm.*,=*fieberi*, Guér. (Antilles &c.).]

b^5. Posterior legs short; the tibiæ straight and armed with two long teeth in the ♂ . . . . . *femoralis*, n. sp.

b^4. Posterior femora moderately incrassate and seriately dentate, and the posterior tibiæ nearly straight and very finely or minutely denticulate, in the ♂.

c^5. Posterior femora moderately incrassate in both sexes, flavous at the base and beneath; venter depressed at the base in the ♂ . . . . . *armata*, Burm.

d^5. Posterior femora moderately incrassate in the ♂, slender in the ♀, entirely dark (the base of the median tooth excepted); venter not depressed at the base in the ♂; (the apterous females with the connexivum reflexed inwards and nearly covering the dorsal surface of the abdomen) . *distincta*, n. sp. †

b'''. Intermediate femora constricted at the middle; posterior femora (♀) hollowed at the base and dentate in their outer half; posterior tibiæ obsoletely denticulate . . . . . *spinigera*, n. sp.

b''. Posterior femora slender, and with one long and three or four very short teeth, in both sexes; posterior tibiæ straight and obsoletely denticulate; elytra extending to far beyond the abdomen, with regular nervures . . . . . [*angustipes*, Uhler (Antilles).]

b'. Penultimate joint of the intermediate tarsi much longer than the apical joint; elytra extending to far beyond the abdomen, with irregular longitudinal nervures; pronotum (in the winged forms) obtuse at the tip behind; posterior femora slender, and with one long and three or four very short teeth, in both sexes; abdomen short . . . . . *tenuipes*, n. sp.

b. Posterior tibiæ armed with a long, slender hook at the apex; posterior femora moderately incrassate, armed with a row of teeth of unequal length; pronotum (in the winged forms) obtusely pointed at the tip.

c'. Terminal genital segment mucronate; pronotum fuscous, with the anterior and posterior margins flavous . . . . . *uncinata*, n. sp.

d'. Terminal genital segment not mucronate.

c''. Pronotum fuscous, with the anterior and posterior margins flavous; legs moderately long . . . . . [*elegans*, Uhler (Antilles).]

d''. Pronotum rufo-castaneous, with the anterior and posterior margins flavous; legs shorter . . . . . *insularis*, n. sp.

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* Recorded from Mexico by Prof. Uhler (Bull. U. S. Geol. and Geogr. Surv. i. ser. 2, p. 334), but probably in error.

† ?=*R. obesa*, Uhler.

1. **Rhagovelia crassipes,** n. sp. (Tab. VIII. figg. 20, apterous ♂, from beneath; 21, apterous ♀.)

Winged form. Elongate, robust, brownish-black, the front of the head and the posterior margin of the pronotum, and sometimes a narrow evanescent median line on the disc of the latter anteriorly, obscure ferruginous; the pronotum with a transverse fulvous fascia in front, this becoming whitish at the sides; the venter, except at the sides, and the connexival margins fulvous; the pleura and sides of the venter bluish-grey; the antennæ nigro-fuscous, testaceous at the base; the legs fuscous or nigro-fuscous, much paler beneath, the trochanters and coxæ, and the base of the anterior and hind femora testaceous; the elytra blackish-brown, with black nervures; the entire body, legs, and antennæ clothed with short, fine, brownish or pallid pubescence, the head, pronotum, and sides of the body sparsely, the legs, and joints 1–3 of the antennæ thickly, clothed also with long hairs, the legs and joints 1 and 2 of the antennæ with scattered setæ. Head with a smooth impressed median line; antennæ moderately long, joint 1 rather more than one-half longer than 2, 3 a little shorter than 2, 4 shorter than 3, pointed at the tip. Pronotum produced behind into a long, raised, spiniform process, which is armed beneath at some distance before the tip with a stout tooth; the surface impressed with a few scattered punctures. Elytra extending to some little distance beyond the apex of the abdomen, the nervures prominent. Legs stout, the hind pair comparatively elongate; intermediate tarsi with joint 2 slightly shorter than 3.

♂. Posterior femora enormously incrassated, armed with numerous short teeth, the innermost of these arranged in two regular rows, and with one longer tooth towards the base and three or four others towards the apex; posterior tibiæ bowed inwards to beyond the middle and curved outwards thence to the apex, shortly denticulate on their inner edge, and armed with one long tooth at about one-third from the apex, a shorter one close to it, one near the apex, and another at the apical angle; posterior coxæ and trochanters very stout, the coxæ rather narrowly separated, the trochanters obsoletely denticulate beneath. Metasternum with a smooth, rufous, tuberculiform prominence in the middle behind. Ventral segments 1–3 keeled down the centre. Sixth ventral segment arcuate-emarginate at the apex, the sides of this segment, like those of the genital segments, thickly clothed with bristly hairs. Sixth dorsal segment truncate at the apex.

♀. Posterior femora moderately incrassate, slightly hollowed on the inner side towards the apex, armed with numerous short teeth, which extend from the middle to the apex, and with one long slightly curved tooth a little before the middle; posterior tibiæ straight, shortly denticulate within, and with a short straight tooth at the apical angle; posterior coxæ widely separated. Sixth dorsal segment rounded at the apex.

Length 6–7, breadth (of the pronotum) $2\frac{1}{5}$–$2\frac{2}{5}$ millim.

Apterous form. Fusiform, the pronotum abbreviated and rounded behind, the sutures and the sides of the dorsal abdominal segments grey or bluish-grey, the latter inclining to ferruginous down the centre.

Hab. PANAMA, Tolé and Peña Blanca (*Champion*).

Found in plenty on the surface of the rivers draining the Pacific slope. Five only of the specimens are winged. This species is well characterized by the enormously thickened hind femora and the bowed hind tibiæ in the male sex, both femora and tibiæ being armed with numerous teeth. The hind femora of the female are formed somewhat as in the male of *R. armata*. The oblique ridge on each side of the mesosternum, extending from the intermediate to the anterior coxæ, is very prominent. In one of the apterous males from Tolé the hind legs, the metasternum, and the base of the abdomen are formed exactly as in the females: it is probably a monstrosity.

2. **Rhagovelia varipes,** n. sp. (Tab. VIII. fig. 22, apterous ♂.)

Apterous form. ♂. Elongate, moderately robust, fusiform, black, the abdomen piceous at the apex above, the base of the antennæ, the prosternum, the coxæ, the trochanters (the apex of the intermediate pair excepted), the anterior femora with about the basal half above and beneath, the intermediate femora at the base beneath, and the posterior femora at the base, beneath, and within, more or less flavous; the

pronotum with a transverse fascia in front, the connexivum, and the venter, except at the sides anteriorly fulvous; the body clothed with fine brownish pubescence, the head and the sides of the pronotum and of the terminal abdominal segments with long hairs; the antennæ clothed with fine hairs, the two basal joints also with scattered setæ; the legs thickly clothed with long hairs and scattered setæ. Head with a smooth impressed median line; antennæ with joint 2 about one-half the length of 1 (the other joints broken off). Pronotum abbreviated and rounded behind, with indications of a median ridge anteriorly. Abdomen gradually narrowing from the base; the first and second ventral segments strongly, longitudinally carinate down the middle, the sixth segment deeply triangularly emarginate at the apex, leaving the first genital segment exposed. Anterior tibiæ slightly hollowed at the apex beneath. Intermediate tarsi with the second joint slightly longer than the third. Posterior femora greatly incrassate, armed with numerous teeth, which are placed in two rows along the centre, those of the upper row unequal in length, there being three longer teeth towards the middle and two beyond it; posterior tibiæ denticulate and strongly sinuous, the teeth along the apical third slightly longer than the others, the apex unarmed.
Length nearly 6, breadth $1\frac{3}{4}$ millim.

Hab. MEXICO (*Bilimek, in Mus. Vind. Cæs.*).

One specimen. Allied to *R. crassipes*, but differing from the apterous male of that species in the less thickened posterior femora, the posterior tibiæ without long teeth at the apex, the second joint of the intermediate tarsi longer, the sixth ventral segment triangularly emarginate at the apex, &c. The more thickened posterior femora and the sinuous posterior tibiæ separate *R. varipes* from the males of *R. armata*, *R. distincta*, &c., the last-mentioned character distinguishing it from *R. femoralis*. Also very like *R. collaris*, but larger and more elongate, with longer legs and antennæ, the anterior tibiæ undilated in the male, &c.

3. **Rhagovelia femoralis,** n. sp. (Tab. VIII. fig. 23, apterous ♂.)

Apterous form. ♂. Moderately elongate, robust, fusiform, black, the base of the antennæ, a narrow transverse band on the pronotum just before the apex, the front of the prosternum, the anterior coxæ and trochanters, the anterior femora broadly at the base and in great part beneath, the middle coxæ, the hind coxæ and trochanters, the hind femora within, beneath, and at the base, and the venter in the middle at the apex, flavous or fulvous; the pleura and the sides of the abdomen bluish-grey; the body, legs, and antennæ clothed with short, very fine, brownish pubescence, the sides of the body, the head, the two basal joints of the antennæ, and the legs clothed also with long hairs and setæ. Head with a smooth impressed median line; antennæ comparatively short, joint 1 about twice as long as 2, 2–4 subequal in length, 4 fusiform, pointed at the tip. Pronotum abbreviated and rounded behind. Legs stout, the middle pair very long, the hind pair comparatively short; posterior femora enormously incrassated, armed with two rows of rather long teeth, extending from about the basal third to near the apex, and with one much longer tooth at the basal third; posterior tibiæ almost straight, denticulate within, and armed with one long tooth at some distance from the apex and another at the apical angle; posterior trochanters denticulate beneath; intermediate tarsi with joint 2 slightly shorter than 3. Ventral segments 1–5 with a median ridge, which becomes evanescent posteriorly.
Length $4\frac{1}{3}$, breadth (of the pronotum) $1\frac{1}{2}$ millim.

Hab. PANAMA, Peña Blanca (*Champion*).

One example. Allied to *R. crassipes*, but much smaller, with relatively shorter hind legs, the armature of both femora and tibiæ very different, the antennæ shorter, the intermediate tibiæ relatively shorter, the metasternum without tubercle in the male, &c. *R. collaris* (Burm.), from the Antilles and South America, one of the types of which is before me, is very like the present species; but it has the anterior

tibiæ strongly dilated and the hind tibiæ sinuous (as in *R. crassipes*) in the male, the connexival margins pale, &c.

4. **Rhagovelia armata.** (Tab. VIII. fig. 24, apterous ♀.)

Velia armata, Burm. Handb. der Ent. ii. p. 212[1].

Rhagovelia armata, Sign. Bull. Soc. Ent. Fr. 1877, p. liv[2].

Winged form. ♂. Moderately elongate, brownish-black, the legs with an æneous lustre, the base of the antennæ, a transverse band on the front of the pronotum, the prosternum, all the coxæ and trochanters, the basal half of the anterior femora, the hind femora at the base, within, and beneath, the connexivum, the last three ventral segments broadly in the middle, and the genital segments beneath, flavous or fulvous; the pleura and sides of the abdomen bluish-grey; the elytra blackish-brown, the nervures darker; the head and pronotum somewhat thickly clothed with short yellowish pubescence, the head and propleura with a few long bristly hairs; the costal margins of the elytra, the sides of the body, the legs, and antennæ pubescent, the two basal joints of the antennæ, the margins of the genital and sixth connexival segments, and the legs clothed also with long scattered setæ. Head with a smooth impressed median line; antennæ moderately elongate, joint 1 rather more than one-half longer than 2, 2 and 3 subequal, 4 a little shorter than 3, pointed at the tip. Pronotum produced behind into a long spiniform process, which is armed with a stout spine beneath. Legs moderately stout; anterior tibiæ dilated in their outer half, grooved beneath; posterior femora moderately incrassate, armed with a long tooth at the middle, and with a row of short teeth extending thence to the apex, these teeth diminishing in length outwards; posterior tibiæ slightly sinuate and finely denticulate within, straight on their outer edge, and with a short straight tooth at the inner apical angle; posterior trochanters obsoletely denticulate beneath; intermediate tarsi with joints 2 and 3 subequal in length. Ventral segments 1 and 2 and the intercoxal portion of the metasternum depressed, the two segments with indications of a median ridge, the sixth ventral segment feebly emarginate at the apex and depressed along the middle behind.

Apterous form. ♀. Fusiform, the pronotum abbreviated and rounded behind; the posterior femora a little less incrassate, with the first (or median) tooth longer and those near the apex shorter; posterior tibiæ straight and finely denticulate on their inner edge.

Length $5\frac{3}{4}$, breadth (of the pronotum of the winged ♂) 2 millim.

Hab. Mexico (*Mus. Berol.*[1]: ♂; *Mus. Vind. Cæs., ex coll. Signoret*[2]: ♀).

Burmeister's diagnosis of this species is quite inadequate, and a fresh description is given from one of his types, a male, and from a second specimen (♀) belonging to the Vienna Museum. *R. armata* is perhaps nearest allied to *R. femoralis*, differing from it in the more elongate body, the longer legs and antennæ, the less incrassate posterior femora in the male, the hind tibiæ without long teeth in this sex. The partly flavous posterior femora, the depressed base of the venter in the male, &c., separate it from *R. distincta*. The apterous female from the Signoret collection is figured *.

5. **Rhagovelia distincta,** n. sp. (Tab. VIII. figg. 25, apterous ♂; 26, apterous ♀; 27, winged ♀; 27 *a*, profile of pronotum, winged ♀.)

Velia distincta (Uhler), Walk. Cat. Hemipt. Heteropt. viii. p. 161 (1873) (sine descr.)[1].

Rhagovelia mexicana, Sign. Bull. Soc. Ent. Fr. 1877, p. lv (sine descr.)[2].

Winged form. Moderately elongate, black, the legs with a green or bluish-green lustre, the pronotum with a

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* *Velia armata*, Burm., has been recorded from Texas by Prof. Uhler (Bull. U. S. Geol. and Geogr. Surv. i. ser. 2, p. 334), but the determination is doubtful.

narrow transverse fulvous mark on each side of the disc in front, the base of the antennæ, the prosternum, the coxæ and trochanters entirely or in part, the base of the anterior femora, the connexival margins, and in the males the terminal ventral segment in the middle and the underside of the first genital segment, more or less flavous; the pleura and under surface bluish-grey; the body, legs, and antennæ very finely pubescent, and also clothed (the two apical joints of the antennæ excepted) with long scattered setæ, the pronotum usually with a transverse patch of greyish or silvery pubescence on each side in front. Head with a smooth impressed median line; antennæ moderately long, joint 1 about one-half longer than 2, 2 and 3 equal in length, 4 shorter than 3, stout, fusiform. Pronotum with a distinct median ridge, and produced behind into a spiniform process, the surface sparsely and finely punctured. Legs long and rather slender, the hind tibiæ with a very short indistinct tooth at the apex; intermediate tarsi with joints 2 and 3 subequal in length.

♂. Anterior tibiæ dilated in their apical half; posterior femora moderately incrassate, armed on the inner side with a long, partly flavous, tooth at about one-third from the base, and with a row of short teeth extending thence to the apex (in some of the well-developed apterous examples also closely and finely denticulate along the basal third); posterior tibiæ finely denticulate and slightly sinuous within. Pronotal spine short. Sixth ventral segment broadly flattened along the middle and feebly arcuate-emarginate at the apex.

♀. Posterior femora not stouter than the intermediate femora, armed with a very long, acute, blackish tooth at about the middle, and very finely denticulate thence to the apex; posterior tibiæ straight, obsoletely denticulate within. Pronotal spine very long, stout, and raised, armed with a strong tooth at the base beneath.

Length 5, breadth (of the pronotum) $1\frac{1}{2}$–$1\frac{3}{4}$ millim.

Apterous form. ♂ ♀. Fusiform, the pronotum abbreviated and rounded behind; the abdomen metallic green above, with a stripe of greyish pubescence running down each side of the dorsal surface; the connexivum very broad in the females, extending inwards and overlapping the dorsal surface of the abdomen, the two portions nearly or quite meeting along the median line.

Hab. NORTH AMERICA, Indiana[1].—MEXICO (*coll. Signoret*[2], *in Mus. Vind. Cæs.*), Orizaba (*H. H. Smith; Bilimek, in Mus. Vind. Cæs.*).

Var. Apterous form. ♂ ♀. The anterior femora dark to the base; the coxæ and trochanters darker, the latter, at most, flavous at the base; the sixth ventral segment broadly flattened, the flattened portion limited on each side anteriorly by a short, angular, longitudinal ridge.

Hab. MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

Of this species we have received a winged pair from Orizaba, as well as numerous apterous specimens and nymphs from the same locality; there are also three winged Mexican examples (two males and one female) of it in the Vienna Museum *, one of them being from the Signoret collection. It is the *Velia distincta* of Walker's Catalogue. The form treated as a variety is represented by five females and one male, all of which are apterous. The great difference in the form of the pronotal spine amongst the winged specimens is perhaps a sexual character. In some of the males the posterior femora are more strongly incrassate, with the basal third closely and distinctly denticulate within; the females have the single long tooth more distant from the base, and the outer teeth very short and fine. The apical joint of the antennæ

* In the Vienna Museum there is a winged specimen of an undescribed species closely allied to *R. distincta*. It is from the Signoret collection, and ticketed "*R. armata*, Burm., Centr. America"; but as the localities attached to some of Signoret's specimens cannot be depended upon (his undescribed *R. burmeisteri* being labelled "Centr. America," whereas he himself has published it as from La Guayra), the insect is omitted from our enumeration

is a little stouter than in *R. armata*. *R. angustipes*, Uhler, from the island of Grenada, is an allied form, but it has more slender hind femora. It is possible that *R. distincta* may prove to be referable to *R. obesa*, Uhler, but the description of the latter is too incomplete for identification. Orizaba specimens are figured, showing the different forms.

6. **Rhagovelia spinigera,** n. sp. (Tab. VIII. figg. 28, ♀; 28 *a*, profile of pronotum.)

Winged form. ♀. Moderately elongate, brownish-black, the legs with a bluish-green lustre, the base of the antennæ, a transverse mark on each side of the disc of the pronotum before the apex, the prosternum in great part, all the coxæ and trochanters, the anterior femora broadly at the base, the ante-coxal portions of the meso- and metasternum, the connexival margins, and the apex of the venter, flavous; the pleura and sides of the abdomen bluish-grey; the elytra (the nervures included) blackish-brown; the head and pronotum microscopically pubescent, the pronotum greyish-pruinose at the sides in front, and clothed laterally with a few bristly hairs, the sides of the body sparsely pubescent, the sixth and genital segments fringed laterally with bristly hairs; antennæ and legs finely pubescent, the femora, tibiæ, and the two basal joints of the antennæ also with long scattered setæ. Head with a smooth impressed median line; antennæ moderately long, joint 1 nearly twice as long as 2, 2 and 3 subequal, 4 shorter than 3, fusiform, pointed at the tip. Pronotum produced behind into a long, semierect, spiniform process, the surface thickly punctured, except along the slightly raised median line, each puncture placed in a small rounded depression. Elytra extending beyond the genital segments, the nervures not very prominent. Legs comparatively slender, the hind pair rather short; anterior femora feebly sinuous; intermediate femora curved in front and concave within, abruptly compressed at the middle; posterior femora curved in front, concave on the inner side from the base to near the middle and also before the apex, scarcely stouter than the intermediate pair, and armed with a long curved tooth at the middle, and five or six short teeth between this and the apex, these latter diminishing in length outwards; posterior tibiæ straight, obsoletely denticulate towards the base, and with a very short straight tooth at the apical angle; intermediate tarsi with joint 2 shorter than 3.

Length $4\frac{1}{2}$, breadth (of the pronotum) $1\frac{2}{3}$ millim.

Hab. GUATEMALA, San Gerónimo in Vera Paz (*Champion*).

One example. In this species the intermediate femora look as if they had been injured during the earlier stages of the insect; but as the constriction is precisely similar in both legs, this cannot be the case. The hind femora, too, are abnormal in form, being hollowed on the inner face towards the base and apex, appearing bisinuate within. The pronotum is conspicuously punctured.

7. **Rhagovelia tenuipes,** n. sp. (Tab. VIII. figg. 29, winged ♂; 30, apterous ♀.)

Winged form. Moderately elongate, black, the legs with an æneous lustre, the base of the antennæ pale flavous, the pronotum with a narrow fulvous transverse mark in front, the anterior and hind coxæ and trochanters more or less flavous; the pleura and under surface bluish-grey; the body, legs, and antennæ clothed with very fine brownish pubescence, and also (the apical two joints of the antennæ excepted) with a few long, scattered setæ. Head with a smooth impressed median line; antennæ long and slender, joint 1 nearly twice as long as 2, 2 and 3 equal in length, 4 considerably shorter than 3, curved, pointed at the tip. Pronotum with the posterior portion obtuse behind, the surface with very fine scattered punctures. Elytra extending to far beyond the apex of the abdomen, the neuration irregular. Abdomen short. Legs very long and slender, the hind tibiæ unarmed at the tip; intermediate tarsi with joint 2 considerably longer than 3.

Apterous form. Subfusiform (♂), oblong-ovate (♀); the pronotum abbreviated and rounded behind, the anterior lobe separated by a distinct suture; the upper surface uniformly clothed with brownish pubescence, the pronotum with greyish pubescence on each side in front.

♂ ♀. Posterior femora comparatively slender, not stouter than the intermediate femora, armed with a long, slender, acute tooth at about the middle, and with a row of very short teeth extending thence to near the apex; posterior tibiæ unarmed on their inner edge.

Length of the winged male 4; breadth of the apterous female $1\frac{3}{4}$, of the pronotum of the winged male $1\frac{1}{2}$ millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

One winged male example, one apterous female, two immature apterous males, and two nymphs have been received of this species, which differs from all others of the genus here described in the long, slender, posterior femora in the male—these being similarly formed in both sexes, and having a slender prominent tooth,—the slender antennæ, &c. *R. tenuipes* is nearest allied to *R. angustipes*, from Grenada and St. Vincent *, it having the armature of the posterior femora similar; but has longer legs and antennæ, and a much longer penultimate joint to the intermediate tarsi. The setæ on the two basal joints of the antennæ are few in number. The neuration of the elytra is different from that of the allied species, the median longitudinal nervure being irregular, and at about the middle connected with the inner and costal nervures by more numerous transverse veins. The apterous female specimen has the thoracic sutures formed as in the genus *Trochopus*—e. g., the pronotum is reduced to a short lobe, and the larger posterior portion becomes mesonotum. The abdomen is short in both forms.

8. **Rhagovelia uncinata,** n. sp. (Tab. IX. figg. 1, apterous ♂, from beneath; 2, winged ♀; 2 *a*, elytron.)

Winged form. Moderately elongate, nigro-fuscous or rufo-fuscous, the front of the head, the base of the antennæ, the pronotum with a broad band in front, the lateral and posterior margins, and an evanescent median line, the connexival margins broadly, and the under surface, flavous or testaceous, the venter sometimes with a fuscous stripe on each side; the legs black above, flavous beneath, the anterior femora at the base above, the posterior femora at the base and within, and the coxæ and trochanters also more or less flavous; the elytra blackish-brown; the body, legs, and antennæ finely pubescent, the head, the sides of the body, and the three basal joints of the antennæ somewhat thickly clothed with long hairs, the legs and joints 1 and 2 of the antennæ also with scattered setæ. Head with a smooth impressed median line; antennæ rather slender, joint 1 one-half longer than 2, 2–4 decreasing in length, 4 pointed at the tip. Pronotum sparsely punctured, the posterior portion triangular, obtuse at the apex. Elytra extending as far as the apex of the terminal process of the abdomen. Terminal genital segment in both sexes produced into a sharp spine at the apex. Legs rather slender; the posterior tibiæ armed with a long, slender hook at the apex in both sexes; the intermediate tarsi with joint 2 much shorter than 3.

♂. Posterior femora moderately incrassate, armed with seven or eight acute, curved teeth, the two inner ones much longer than the others and widely separated (one at the middle, and one at about the basal third), the two or three apical ones very short; posterior tibiæ finely and obsoletely denticulate on their inner edge, the denticulation becoming more distinct towards the base.

♀. Posterior femora less thickened, with the teeth usually a little shorter.

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* *R. obesa*, Uhler, from St. Vincent (P. Z. S. 1893, p. 706), = *R. angustipes*, Uhler (P. Z. S. 1894, p. 215).

Apterous form. ♂ ♀. Fusiform; the pronotum abbreviated and rounded behind, bordered with flavous all round, the mesonotum also bordered with flavous behind; the abdomen with a pale stripe down the centre.

Length 4–5$\frac{1}{8}$; breadth of the pronotum in the winged form 1$\frac{1}{2}$–2, of that of the apterous form 1$\frac{1}{4}$–1$\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

Found plentifully on the surface of the water of small streams in the forest-region of the "tierra caliente," the winged form predominating, three apterous specimens only, all males, having been obtained. This insect is extremely like *R. elegans*, Uhler, from the Island of Grenada, it being of the same size and colour; but differs from that insect in having the terminal genital segment in both sexes produced into a spiniform process, and the two long inner teeth of the posterior femora less approximate. Both species have a long, slender hook at the apex of the posterior tibiæ, a character overlooked by Prof. Uhler.

9. **Rhagovelia insularis,** n. sp. (Tab. IX. figg. 3, winged ♂; 3 *a*, apex of abdomen, ♂.)

Winged form. Moderately elongate; the head brownish-black, flavous in front; the pronotum rufo-castaneous, bordered broadly in front and narrowly behind with flavo-fulvous, and with a similarly-coloured, evanescent, median line anteriorly; the elytra blackish-brown; the body beneath and the connexivum flavous, the venter and the pleura greyish-white; the antennæ and legs black with a faint æneous lustre, the antennæ at the base, the anterior femora beneath and at the base above, the hind femora beneath, the coxæ, the anterior trochanters, and the intermediate and hind trochanters in part, flavous; the body, legs, and antennæ very finely pubescent, the head, the sides of the body, the three basal joints of the antennæ, and the legs somewhat thickly clothed with long hairs, the legs and joints 1 and 2 of the antennæ also with long scattered setæ. Head with a smooth impressed median line; antennæ rather slender, joint 1 one-half longer than 2, 2–4 decreasing in length, 4 pointed at the tip. Pronotum sparsely punctured, the posterior portion triangular, obtuse at the apex. Elytra extending to a little beyond the apex of the abdomen. Legs rather stout; the posterior tibiæ armed with a long, slender hook at the apex in both sexes; the intermediate tarsi with joint 2 shorter than 3.

♂ ♀. Posterior femora moderately incrassate, armed with five or six acute, curved teeth of unequal length, these extending from about the middle to near the apex, the first, second, and fourth the longest, the inner two a little more distant than the others; posterior tibiæ finely and obsoletely denticulate on their inner edge.

Apterous form. Fusiform; the pronotum abbreviated and rounded behind, the mesonotum and the dorsal surface of the abdomen reddish-brown, the sutures and the lateral margins of the segments grey.

Length 4–4$\frac{3}{4}$; breadth of the pronotum of the winged form 1$\frac{1}{2}$–1$\frac{2}{3}$, of that of the apterous form 1$\frac{1}{3}$ millim.

Hab. PANAMA, San Miguel in the Pearl Islands (*Champion*).

Thirteen specimens, ten of which are winged. Very like *R. uncinata*; but differing from that species in the simple terminal genital segment of the abdomen, the shorter and slightly stouter legs, the reddish dorsum of the pronotum, and the armature of the hind femora, the two inner teeth being more approximate than in that insect. The less elongate form, shorter legs, and the reddish pronotum separate it from *R. elegans*. The hind femora are similarly formed in both sexes. The second and third joints of the hind tarsi are very closely articulated.

The insect was found on the surface of freshwater streams in the Isla del Rey, the largest of the Pearl Islands.

TROCHOPUS.

Trochopus, Carpenter, Ent. Monthly Mag. xxxiv. p. 78, t. 3 (April 1898).

The type of this genus is *T. plumbeus* (Uhler) (=*marinus*, Carp.), from the Antilles and Florida, and the species from the Pearl Islands now added is an allied form. It differs chiefly from *Rhagovelia* in having the tarsi 3-, 2-, 2-jointed, the very small basal joint of the intermediate pair being obsolete, and the second and third joints of the hind pair fused into one. The two species are constantly apterous, and have the pronotum reduced to a short lobe, the larger portion of the disc of the thorax being occupied by the mesonotum.

The beautiful structure of the intermediate tarsi has been figured by Mr. Carpenter (*loc. cit.*). The males have a row of short teeth on the inner edge of the posterior tibiæ, that of *T. salinus* having, in addition, a long tooth on the anterior trochanters.

It is probable that, as in the pelagic *Halobates*, &c., wings would be of very little use to these insects, the water upon which they live never drying up; whereas in the fresh-water *Rhagoveliæ*, which have occasionally to migrate when the streams dry up, wings are a necessity, at least in a certain number of individuals of each species.

Both insects live gregariously on the surface of salt-water in sheltered creeks and inlets.

1. **Trochopus salinus,** n. sp. (Tab. IX. figg. 4, ♂, from beneath; 5, ♀, from above.)

Ovate (♀), subfusiform (♂), black or brownish-black, mottled with grey, beneath entirely grey, the pronotum, except at the sides, the connexival margins broadly, and the apex of the abdomen more or less, above and beneath, ferruginous; the antennæ brownish-black, with the basal half or more of the first joint flavous or ferruginous; the legs brownish-black, the anterior and hind femora in great part, and the intermediate femora at the base, ferruginous or flavo-ferruginous; the coxæ and trochanters flavous; the upper surface thickly clothed with pale brownish pubescence, the head, pronotum, and pleura also with bristly hairs, the under surface with greyish pubescence; the antennæ and legs thickly pubescent, and also clothed (the two outer joints of the antennæ excepted) with long fine hairs and a few setæ. Head with a smooth impressed median line; antennæ long and slender, joint 1 twice as long as 2, 2 and 4 subequal in length, 3 considerably longer, 4 fusiform, 2 and 3 separated by a distinct jointlet. Pronotum separated from the mesonotum by a deep transverse suture, the mesonotum slightly sinuate behind. Connexivum raised and broadly expanded. Legs long and rather stout, the intermediate pair very long, with the penultimate tarsal joint much longer than the apical one.

♂. Anterior trochanters armed with a long, acute, outwardly-directed tooth; posterior femora slightly incrassate, armed with a row of minute teeth, and with a longer and rather prominent tooth at the middle.

♀. Posterior femora feebly incrassate, unarmed, or, at most, with one or two minute teeth about the middle.

Length $3\frac{1}{5}$–$3\frac{4}{5}$, breadth $1\frac{2}{5}$–$1\frac{4}{5}$ millim.

Hab. PANAMA, San Miguel in the Pearl Islands (*Champion*).

Found in abundance in small creeks reached by the tide, in the mangrove swamps of the Isla del Rey, or San Miguel, the largest of the Pearl Islands.

This species is allied to *T. plumbeus* (Uhler) (=*marinus*, Carp.), an insect living on salt water in sheltered places on the shores of Grenada, St. Vincent, Jamaica, and the Florida Keys; but differs from it in having stouter legs, with the hind femora more incrassate, especially in the male, the penultimate joint of the intermediate tarsi shorter, the apical joint of the hind tarsi and also that of the antennæ more elongate, the connexivum very much narrower, the body more ovate in shape, &c.

VELIA.

Velia, Latreille, Gen. Crust. et Ins. iii. p. 132 (1807); Burmeister, Handb. der Ent. ii. p. 211 (part.); Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 419.

A widely distributed genus containing ten or eleven described species, two of which occur within our limits, whence two others are now added *. In one of the new forms described, *V. cinctipes*, the intermediate legs are very long, with their tarsi much longer than those of the posterior legs, as in the European *V. currens* (Fabr.). In *V. brachialis* and *V. annulipes* the intermediate legs are shorter, with their tarsi only a little longer than those of the posterior legs. The following table will serve to separate the three Central-American species known to me. *V. vivida* was imperfectly diagnosed by B. White, the sex and other particulars not being mentioned.

a. Legs rather stout and very distinctly annulate, the intermediate pair not very elongate; intermediate tarsi a little longer than the posterior tarsi; posterior femora very minutely denticulate in the ♂; sixth connexival segment unarmed at the tip.
  a'. Antennæ with joint 1 one-half longer than 2; legs rather short; fifth ventral segment not produced in the ♂ . . . . . *brachialis*, Stål.
  b'. Antennæ with joint 1 nearly twice as long as 2; legs long; fifth ventral segment produced in the ♂ . . . . . *annulipes*, n. sp.
b. Legs more slender, the intermediate pair very elongate, with their tarsi much longer than those of the posterior pair, the posterior femora only distinctly annulate, the latter stout and toothed, the anterior tarsi very short; sixth connexival segment (♀) armed with a slender spine at the tip; antennæ with joint 1 longer than 2 . . . . . *cinctipes*, n. sp.
c. Legs not annulate; antennæ with joints 1 and 2 subequal in length; posterior femora with two teeth . . . . . *vivida*, B. White.

1. **Velia brachialis.** (Tab. IX. figg. 6, apterous ♂; 7, winged ♀.)

Velia brachialis, Stål, Rio Jan. Hemipt. i. p. 82 [1].

Velia stagnalis, Uhler, P. Z. S. 1894, p. 215 (nec Burm.) [2].

Winged form. Moderately elongate, brownish-fulvous or brownish-testaceous, the posterior half of the pronotum fuscous; the venter and pleura more or less fuscous, and greyish-pruinose; the antennæ testaceous or brown, with the second joint darker at the base and apex; the legs flavous, annulated with fuscous; the coxæ and trochanters flavous; the elytra blackish-brown, with a long silvery-white streak at the base

* *Velia agavis*, Blasquez, from Mexico, is a Reduviid.

and three white spots at the apex—the inner one lunate, the others rounded; the body, legs, and antennæ very finely pubescent, and also thickly clothed with long, fine, pallid hairs; the pleura, a spot at the sides of each of the ventral segments, a triangular mark on each side of the pronotum anteriorly, and a spot on both the anterior and posterior sides of each of the femora towards the base, clothed with short silvery pubescence. Head with a smooth, faintly impressed median line; the eyes large and coarsely faceted, reaching the anterior margin of the pronotum; the antennæ long and slender, joint 1 stouter, and fully one-half longer, than 2, 2–4 subequal in length, 3 and 4 very slender. Pronotum distinctly punctured, rounded at the apex behind; the junction between the anterior and posterior lobes indicated by four transversely placed punctures and a triangular lateral depression. Legs comparatively stout, rather short; the intermediate tarsi with joint 2 much longer than 3; posterior femora and trochanters very minutely denticulate on their inner edge in the male, and faintly so in the female.

♂. Sixth ventral segment deeply arcuate-emarginate at the apex.

Apterous form. Pronotum abbreviated and subtruncate behind; the elytra sometimes represented by a pair of small white wing-pads; the dorsal surface of the abdomen fuscous, the terminal two or three segments more or less clothed with glistening silvery pubescence.

Length 4–5, breadth (of the pronotum in the winged form) $1\frac{9}{10}$ millim. (♂ ♀.)

Hab. North America (*Mus. Brit.*).—Mexico (*Mus. Vind. Cæs., ex coll. Signoret*); Guatemala, Paso Antonio, San Joaquin in Vera Paz (*Champion*); Panama, near the city (*Champion*).—Brazil [1]; Antilles, Grenada [2].

Of this species we possess a winged pair and one apterous female from Panama, and two apterous males from Guatemala, these agreeing with Stål's *V. brachialis* and with the Grenada specimens named *V. stagnalis* by Prof. Uhler. There is also a winged male from Mexico in the Vienna Museum. They differ from one of Burmeister's types of *V. stagnalis*, an apterous female, communicated by the Berlin Museum, in having a much longer second joint to the intermediate tarsi (joints 2 and 3 being equal in length in *V. stagnalis*), and larger and more coarsely faceted eyes (the eyes in *V. stagnalis* do not reach the front of the pronotum). The apterous specimens are also less parallel than the type of *V. stagnalis* before me, and have the pronotum less produced behind. The posterior femora are not thickened in the male; the denticulation is so fine as to be scarcely visible, except in immature examples. Stål's type, a male example without antennæ, is now before me. The two apterous North-American specimens in the British Museum were collected and presented by E. Doubleday.

2. **Velia annulipes,** n. sp. (Tab. IX. figg. 8, apterous ♂; 8 *a*, abdomen from beneath, ♂.)

Velia annulipes, Signoret, in litt.

Apterous form. ♂. Moderately elongate, robust, fusiform, the body and antennæ obscure ferruginous, the pleura and sterna blackish, the venter fuscous; the legs flavous, annulated with reddish-brown; the coxæ and trochanters flavous; the body, legs, and antennæ very finely pubescent, and also clothed with longer, fine, pallid hairs; the base of the abdomen above, the pleura, and venter greyish-pruinose; the three terminal dorsal segments of the abdomen, the pleura, the sides of the venter, and an indistinct triangular space on each side of the pronotum anteriorly, with patches of glistening silvery pubescence. Head with a smooth, faintly impressed median line; the eyes large and coarsely faceted, reaching the anterior margin of the pronotum; the antennæ long and slender, joint 1 stouter than, and nearly twice as long as, 2, 2 and 3 subequal in length (4 broken off). Pronotum longitudinally carinate in the middle anteriorly, distinctly

punctured, rounded behind, and with a rather deep transverse groove in front; the propleura extending inwards, and partly separating the anterior from the posterior lobe. Meso- and metapleura laterally prominent. Legs long and rather stout; the femora of equal thickness, the hind pair obsoletely denticulate along their inner edge; the intermediate tarsi with joint 2 longer than 3. Fifth ventral segment broadly produced in the middle behind; the sixth segment very feebly emarginate, with the apical margin thickened. Genital segments very prominent.

Length 5–6¼, breadth (of the pronotum) 1⅞–2 millim.

Hab. MEXICO (*Mus. Vind. Cæs., ex coll. Signoret*); GUATEMALA, near the city (*Champion*).

Two specimens, one of which was found on a stream at the bottom of a deep barranca near the city of Guatemala. Larger, more robust, and more elongate than the apterous form of *V. brachialis*, with more prominent meso- and metapleura, a much longer basal joint to the antennæ, longer legs, and very differently formed fifth and sixth ventral segments in the male. The Guatemalan specimen is figured.

V. virgata, Buch. White, from Manaos, is an allied form.

3. **Velia cinctipes,** n. sp. (Tab. IX. fig. 9, apterous ♂.)

Apterous form. ♀. Elongate, narrow, fusiform, fuscous, the head, the sides of the pronotum in front, the connexival margins broadly, and the ante-coxal pieces brownish-ferruginous, the pleura and venter blackish; the antennæ fusco-testaceous, with the base of the first joint blackish, and the fourth joint almost entirely flavous; the legs fusco-testaceous, the femora flavo-testaceous at the base, the hind pair with a single transverse fuscous band on the upperside about the middle, the tarsi more or less infuscate; the trochanters and coxæ flavous; the under surface with a bluish-grey pruinosity; the body, legs, and antennæ finely pubescent, and also clothed with long fine hairs; the pronotum with a broad patch of glistening silvery pubescence towards the sides anteriorly, the narrow oblique mesonotal pieces behind it entirely clothed with silvery pubescence. Head with indications of an impressed median line; the eyes large and coarsely faceted; the antennæ long and slender, joint 1 thicker and a little longer than 2, strongly curved, 3 much shorter than 2, 4 much shorter than 3, pointed at the tip. Pronotum longer than broad, hexagonal, longitudinally carinate in the middle anteriorly, truncate and abbreviated behind, leaving a narrow oblique piece of the mesonotum exposed on each side, distinctly punctured. Abdomen narrowing from the base; connexivum raised, the sixth segment armed with a slender spine at the apex; the ventral segments 1–5 each with a transverse groove. Legs long and comparatively slender, the intermediate pair very elongate; anterior tarsi short, with joints 1 and 2 very short, 1 minute; intermediate tarsi much longer than the posterior tarsi, each with joint 2 considerably longer than 3; posterior femora moderately incrassate, with two rows of very short teeth on the inner side extending from about the basal third to the apex, and with one longer tooth a little beyond the middle; posterior tibiæ very finely denticulate.

Length 4¾, breadth (of the pronotum) 1½ millim.

Hab. PANAMA, near the city (*Champion*).

One specimen, in a bad state of preservation, the head being mutilated. Differs from the other American species known to me in the long intermediate legs, the form of the antennæ, &c., and also in having the posterior femora incrassate and distinctly toothed. The sixth connexival segment is armed with a slender spine at the outer apical angle.

4. **Velia vivida.**

Velia vivida, Buch. White, Journ. Linn. Soc., Zool. xiv. p. 486[1].

Hab. NICARAGUA[1].

Unknown to me. Described from an apterous specimen, presumably a male. The insect is $7\frac{1}{2}$ millim. long, black, with the usual silvery-pubescent markings; the legs are brown, paler beneath and at the base of the anterior femora; the posterior femora are armed with two spines on the inner side beyond the middle; the antennæ* are long and slender, with joints 1 and 2 subequal in length.

Subfam. *GERRINÆ*.

The subfamily Gerrinæ is usually divided into two groups†, characterized by the relative length of the abdomen, the latter being very short in the pelagic *Halobates* and its allies. This character, however, is so unsatisfactory that it cannot be used—*Brachymetra* having the abdomen scarcely shorter than in some species of *Gerris*, and *Potamobates* being closely related in other respects to *Platygerris*. In the last-mentioned genera the genital segments of the males are asymmetrically formed, these segments being furnished with angular or dentiform processes on one side of the body only. *Halobates* occurs in the vicinity of the Atlantic and Pacific coasts of Central America, and I have seen one species in plenty on the surface of the sea, in the Gulf of Nicoya, Costa Rica; but as the marine forms are excluded from the scope of this work, nothing more need be said about it.

GERRIS.

Gerris, Fabricius, Ent. Syst. iv. p. 187 (1794) (part.); Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 414.

Aquarius, Schellenberg, Das Geschl. Land- und Wasserwanzen, p. 25 (1800).

Hydrometra, Fabricius, Syst. Rhyng. p. 256 (1803) (nec Latreille); Fieber, Europ. Hemipt. pp. 33, 106.

Tenagogonus, Stål, Öfv. Vet.-Ak. Förh. x. p. 263 (1853); Hemipt. Afric. iii. p. 168.

Limnotrechus, Stål, Öfv. Vet.-Ak. Förh. xxv. p. 395 (1868).

Hygrotrechus, Stål, loc. cit.

Five species from Central America are here referred to *Gerris*, in the wide sense: two of these belong to the section *Hygrotrechus*, which includes the European *G. paludum*, Fabr., and *G. najas*, De Geer; the three others to *Limnotrechus*. *Limnometra*, Mayr, and *Limnogonus*, Stål, are retained, each with two Central-American species; *Tenagogonus*, Stål, ought, perhaps, to be adopted in place of one of these names, but as Stål subsequently used *Tenagogonus* for *Gerris* in the wide sense, it is best dropped‡.

The species here referred to *Gerris* have the two joints of the anterior tarsi subequal in length.

* Five joints are mentioned, the minute jointlet between the second and third being counted as a true joint.

† *Cf.* Bianchi, Ann. Mus. Zool. St. Pétersb. 1896, pp. 70, 71.

‡ In his first paper no type is mentioned.

a. Antennæ with joint 1 nearly or quite as long as 2 and 3 united; anterior femora almost straight in the ♂: pronotum covering the mesonotum in the apterous form. [HYGROTRECHUS, Stål.]

a'. Outer apical angles of the sixth connexival segment produced into a short spine; venter in the ♂ rather deeply sulcate and with a double series of black spots . . . . . *remigis*, Say.

b'. Outer apical angles of the sixth connexival segment produced into a long acute spine in the ♂, and with a shorter spine in the ♀; venter in the ♂ shallowly sulcate and with a double series of indistinct darker spots . . . . . *robustus*, Uhler.

b. Antennæ with joint 1 much shorter than 2 and 3 united; outer apical angles of the sixth connexival segment not produced into a spine; anterior femora curved in the ♂. [LIMNOTRECHUS, Stål.]

c'. Venter and metasternum more or less distinctly carinate in both sexes; abdomen with the first genital segment long in the ♂.

a''. Metasternum simply carinate, and the anterior femora dilated towards the apex on the lower side, in the ♂: pronotum covering the mesonotum in the apterous form . . . . . *mexicanus*, n. sp.

b''. Metasternum with a stout oblong prominence, and the anterior femora subangularly dilated on the lower side a little before the middle, in the ♂: pronotum extending over the anterior portion only of the mesonotum in the apterous form . . . . . *cariniventris*, n. sp.

d'. Venter and metasternum neither carinate nor sulcate; abdomen short, with the first genital segment short in the ♂; anterior femora not dilated on the lower side: pronotum not extending over the mesonotum in the apterous form . . . . . *flavolineatus*, n. sp.

1. Gerris remigis.

Gerris remigis, Say, Descr. of New Species of Hemipt. Heteropt. of N. Am. (New Harmony, Dec. 1831)[1]; Complete Writings, i. p. 362[2].

Hygrotrechus remigis, Uhler, Bull. U. S. Geol. and Geogr. Surv. i. ser. 2, p. 335, t. 21. fig. 40 (1876)[3]; Kingsley's Stand. Nat. Hist. ii. p. 267, fig. 322[4].

Winged form. Robust, elongate, the head, the anterior lobe of the pronotum, and the pleura black, the head with a transverse curved line at the base and the anterior lobe of the pronotum with a median line, and sometimes the lateral margins also, ochreous or ferruginous; the posterior portion of the pronotum and the elytra usually brownish-ferruginous, sometimes blackish-brown; the abdomen blackish above, with the connexivum and terminal segments more or less ferruginous, with indications of a black stripe down the middle, interrupted by an elongate greyish mark on each segment; meso- and metasternum blackish, each with a space in front of the coxæ ochreous or ferruginous; venter ferruginous or flavo-ferruginous—in the male with a broad blackish space down the middle, interrupted by a pale median line (forming two large spots on each segment), the sides also more or less blackish,—in the female with a narrow median stripe, interrupted by a pale central line, and the sides towards the base, blackish; the antennæ blackish, sometimes with joints 1 or 1 and 2 obscure ferruginous; the legs brownish or brownish-ferruginous, the anterior femora paler at the base, the anterior tibiæ and tarsi usually blackish; the upper surface clothed with a very short fine golden or greyish pubescence, the elytra with oblong thickly pubescent patches on the nervures, the connexival segments usually with a narrow silvery- or golden-pubescent patch in front;

the under surface and the lower portion of the pleura densely clothed with silvery pubescence, the pubescence on the pleura sometimes inclining to golden. Antennæ rather stout, about reaching to the tip of the pronotum, joint 1 nearly or quite as long as 2 and 3 united, 2 and 3 subequal in length, 4 a little longer than 3. Pronotum with the short anterior lobe rounded at the sides and somewhat sharply demarcated from the posterior lobe; the latter rounded behind, flattened along the posterior margin, obsoletely carinate down the middle, and usually more or less transversely wrinkled. Elytra reaching as far as the tip of the last genital segment in the male, a little shorter in the female. Mesopleura strongly and abruptly dilated before the laterally prominent intermediate coxæ. Abdomen about as long as the thorax; the genital segments long in the male, much shorter in the female, the first segment much narrower than the terminal dorsal segment; the sixth connexival segment produced into a short spine at the outer apical angle in both sexes. Intermediate and hind legs very elongate. Anterior femora very stout and almost straight in the male, more slender in the female. Posterior tarsi with joint 1 about two and one-half times longer than 2. Posterior femora a little shorter than the tibia and tarsus united.

Apterous form. Pronotum covering the mesonotum, rounded at the tip, the two lobes subequal in width; the posterior lobe varying in colour from obscure ferruginous to black, and usually transversely wrinkled. Mesopleura with a triangular silvery-pubescent patch behind.

♂. Ventral segments 3–6 rather broadly sulcate down the middle, the sixth also transversely depressed (its apical margin appearing raised), the apex of the latter broadly and deeply emarginate in the centre and also ciliate; first genital dorsal segment nearly as long as the preceding segment, slightly dilated at the sides posteriorly, the second segment shorter; first genital ventral segment longitudinally raised in the centre, the second segment long and subcordate.

♀. Ventral segments 3–6 faintly canaliculate down the centre, the sixth segment unemarginate at the apex. Two genital segments visible above, one beneath.

Length $13\frac{1}{2}$–$17\frac{1}{2}$, breadth (mesothorax) $3\frac{7}{8}$–$4\frac{1}{2}$ millim.

Hab. North America, United States [1 2 4], Texas, Colorado, Arizona, and Atlantic Region [3].—Mexico [1 2] (*Mus. Vind. Cæs., ex coll. Signoret*), Ciudad in Durango 8100 feet (*Forrer*),' Omilteme in Guerrero 8000 feet (*H. H. Smith*); Guatemala, Quiché Mountains 7000 to 9000 feet (*Champion*).

This is the largest of the Central-American species of the genus, and it is apparently referable to *G. remigis*, Say, which is compared by its describer with *G. paludum*, Fabr. Numerous winged and apterous specimens of both sexes have been examined. The colour, as well as the sculpture, of the posterior portion of the pronotum is variable. The anterior femora are very stout. The male has the venter sulcate down the middle, with two large blackish spots on each segment, the sixth broadly and deeply emarginate at the apex. The female has the venter obsoletely canaliculate, with a dark stripe down the centre, divided by a pallid line. In the larger males the anterior femora are greatly incrassate. The following is a very closely allied form.

2. Gerris robustus.

Hygrotrechus robustus, Uhler, in Pickard's Ins. salt water, Silliman's Journ. (3) i. p. 105 (♀) (1871)[1]; Proc. Calif. Acad. Sci. (2) iv. p. 288[2].

Gerris aptera, Walk. Cat. Hemipt. Heteropt. viii. p. 165 (1873)[3].

Winged form. Closely allied to *G. remigis*, Say, and very similarly coloured, the posterior portion of the pronotum obscure ferruginous or ochraceo-ferruginous, the ventral segments without conspicuous blackish

patches in the male; the legs a little more slender, the anterior femora moderately stout; sixth connexival segment with the outer apical angles more acute in both sexes.

Apterous form. Pronotum formed as in *G. remigis*, obscure ferruginous or ochraceo-ferruginous.

♂. Ventral segments shallowly sulcate down the middle, the sixth also transversely depressed, the latter broadly and deeply emarginate in the centre at the apex, with the apical margin ciliate; the genital segments formed as in *G. remigis*. Sixth connexival segment produced at the outer apical angle into a long and acute spine, usually extending to the middle of the long first genital segment.

♀. Ventral segments with only the faintest trace of an impressed median line. Sixth connexival segment with the spine less acute, curved a little inwards, and about reaching the apex of the short first genital segment.

Length $11\frac{1}{2}$–16, breadth 3–4 millim.

Hab. North America[3], Clear Lake, California[1], Lower California[2].—Mexico (*Sallé & Boucard, in Mus. Holm.; Bilimek, in Mus. Vind. Cæs.*), Monclova in Coahuila (*Dr. Palmer*), Tacubaya (*Bilimek, in Mus. Vind. Cæs.*).

Fourteen Mexican specimens, including winged and apterous specimens of both sexes, are referred to this species. They are very closely allied to *G. remigis*; but differ from it in the form and coloration of the venter in the male, and in the more acute connexival spines in both sexes. The posterior portion of the pronotum is constantly ochraceo-ferruginous or rufescent. In the male the venter is shallowly grooved down the middle, and, at most, slightly infuscate on each side of the median groove.

The original description was made from a badly mutilated female example. I have seen a Mexican specimen, received from Mr. C. Baker of Auburn, Alabama, which I believe has been determined by Prof. Uhler as *G. robustus*.

The present insect somewhat resembles *G. rufoscutellatus*, Latr.; but it is more robust and less parallel, and has shorter connexival spines, &c.

3. **Gerris mexicanus,** n. sp. (Tab. IX. fig. 10, ♂.)

Winged form. Moderately robust, rather elongate; black, a transverse curved line at the base of the head and a median line on the anterior lobe of the pronotum ochraceous; the posterior lobe of the pronotum, except in the centre in front and at the sides above anteriorly, ochraceo-ferruginous or brownish-testaceous; the elytra brown or reddish-brown; the coxæ, the ante-coxal pieces of the meso- and metapleura, the apex of the abdomen beneath, the prosternum, and the rostrum, except at the tip, ochraceous; the connexival margins narrowly ochraceous or ferruginous; the legs brownish-ferruginous or fuscous, the anterior femora ochraceous at the base and sometimes with a blackish line above; the antennæ blackish, the basal one or two joints usually in part ferruginous; above somewhat thickly clothed with very short fine golden or greyish pubescence, the lower part of the pleura and the under surface with silvery pubescence. Antennæ reaching to the tip of the pronotum, rather stout, joints 2–4 subequal in length, 1 about one-half longer than 2. Pronotum with the anterior lobe short; the posterior lobe rounded behind, flattened along the hind margin, obsoletely carinate down the middle, tumid at the shoulders, and sometimes transversely raised between them. Elytra extending beyond the abdomen in both sexes. Mesopleura strongly dilated before the laterally prominent intermediate coxæ. Abdomen shorter than the thorax; sixth connexival segment unarmed at the apex; two genital segments visible from above in both sexes, the first long in the male and very short in the female, the second very short in the male. Metasternum and venter faintly carinate down the middle. Intermediate and hind legs moderately elongate. Anterior femora stout. Posterior tarsi with joint 1 two and one-half times as long as 2. Posterior femora about as long as the tibia and tarsus united.

Apterous form. Pronotum covering the mesonotum, the anterior lobe a little raised and rather sharply demarcated from the posterior lobe, the latter ferruginous.

♂. Anterior femora curved from the base, concave beneath, and considerably dilated towards the apex on the lower side; sixth ventral segment deeply emarginate at the apex.

Length $8\frac{1}{2}$–$11\frac{1}{2}$, breadth $2\frac{4}{5}$–$3\frac{1}{2}$ millim. (♂ ♀.)

Hab. Mexico (*Mus. Vind. Cæs., ex coll. Signoret*), Orizaba (*Sallé; Bilimek, in Mus. Vind. Cæs.*), Cuernavaca (*Bilimek, in Mus. Vind. Cæs.*).

Of this species I have seen fourteen specimens, four of which are winged. This insect is smaller and less elongate than *G. robustus*, differing from it in the unarmed sixth connexival segment, the peculiarly formed anterior femora in the male, the shorter genital segments in both sexes, the ungrooved venter, &c.

The specimen from the Signoret collection is labelled *G. remigis*, Say? An apterous male from Cuernavaca is figured.

4. **Gerris cariniventris,** n. sp. (Tab. IX. figg. 11, ♂; 11 *a*, body from beneath, ♂; 12, ♀; 12 *a*, body from beneath, ♀.)

Winged form. Rather narrow (♂), broader (♀); black, a transverse curved line at the base of the head, the sides of the latter before, and in some specimens between, the eyes, a median line on the anterior lobe of the pronotum, the lateral margins of both lobes of the pronotum, and sometimes the hind margin also, the pleura in great part, the coxæ, the connexival margins, and sometimes an interrupted stripe down the middle of the dorsal segments of the abdomen, ochraceous; the under surface and rostrum (the tip excepted) pale ochraceous, the mesosternum sometimes with an oblique black streak on each side extending backwards from the anterior coxæ; the elytra blackish or fuscous; the antennæ blackish or obscure ferruginous, the basal joint usually paler; the posterior lobe of the pronotum sometimes obscure ferruginous behind; the legs fuscous or brownish, the anterior femora paler at the base; the upper surface with very short fine golden pubescence, the lower surface clothed with pallid or silvery pubescence, the pleura with a conspicuous stripe of silvery pubescence. Antennæ rather slender, extending beyond the tip of the pronotum, joints 2–4 subequal in length, 1 about one-fourth longer than 2. Pronotum with the anterior lobe short and somewhat sharply demarcated; the posterior lobe rounded behind, flattened or grooved along the hind margin, transversely raised between the tumid shoulders, and more or less distinctly carinate down the middle. Elytra extending to considerably beyond the abdomen. Mesopleura in the female strongly dilated before the laterally prominent intermediate coxæ, narrower in the male. Abdomen rather short, rapidly narrowing from the base; sixth connexival segment unarmed at the apex; two genital segments visible from above in both sexes, the first very long in the male. Metasternum and venter carinate down the middle. Posterior legs with the femora considerably longer than the tibia and tarsus united, the first joint of the tarsi nearly three times the length of the second.

Apterous form. Pronotum extending backwards and covering about one-third or one-half of the mesonotum, rounded behind; the mesonotum ferruginous or ochraceous, sometimes with a small blackish patch in the middle in front divided by a pale line, and often raised or tumid behind.

♂. Anterior femora stout, curved at the base, and subangularly dilated on the lower side a little before the middle; sixth ventral segment deeply emarginate at the apex; metasternum with a stout oval prominence in the centre, in a line with the ventral carina.

♀. Anterior femora very feebly curved at the base; metasternum carinate.

Length 7–10, breadth $2\frac{1}{4}$–$3\frac{1}{8}$ millim.

Hab. Mexico, Amula in Guerrero (*H. H. Smith*), Cuernavaca in Morelos (*Bilimek, in Mus. Vind. Cæs.*); Guatemala, near the city (*Champion*); Costa Rica, Volcan de Irazu, Rio Sucio (*Rogers*); Panama, Volcan de Chiriqui (*Champion*).

Found in some numbers at Amula and at the Rio Sucio. Allied to *G. flavolineatus*; but differing from it in the carinate venter, the long first genital segment in the male, the subangularly dilated anterior femora in this sex, &c. In the apterous form the pronotum extends backwards over the front of the mesonotum, and the mesonotum is frequently raised or tumid posteriorly. The under surface is usually entirely pale. An apterous male from Irazu and an apterous female from Amula are figured.

5. **Gerris flavolineatus,** n. sp. (Tab. IX. figg. 13, ♂; 13 *a*, body from beneath, ♂; 14, 15, ♀.)

Aulasternum lineola, Sign. in litt.

Winged form. Broad and robust (♀), much smaller and narrower (♂); above black or brownish-black, a curved transverse fascia at the base of the head and a narrow median vitta on the anterior lobe of the pronotum ochraceous; the posterior lobe of the pronotum, and usually the anterior lobe at the sides, and the sides of the head before the eyes, ochraceo-ferruginous; the dorsum of the abdomen usually more or less ferruginous in the middle; the coxæ, the rostrum, except at the tip, the connexival margins, and the under surface of the body ochraceous, the mesosternum with an oblique black stripe on each side extending backwards from the anterior coxæ, the middle of the metasternum, and sometimes the sides or middle of the venter, blackish or infuscate; the elytra brown, with darker nervures; the antennæ blackish or obscure ferruginous; the legs fuscous or brownish, the anterior femora ochraceous at the base and more or less marked with black above; the upper surface with very short, fine, golden pubescence, the lower surface thickly clothed with whitish or silvery pubescence, the ante-coxal pieces of the meso- and metapleura each with a silvery-pubescent spot or stripe, the pro- and mesopleura with a silvery-pubescent stripe. Antennæ reaching to a little beyond the tip of the pronotum, rather slender, joints 2–4 subequal in length, 1 about one-third longer than 2. Pronotum with the anterior lobe short and somewhat sharply demarcated, depressed along the middle; the posterior lobe rounded behind, flattened along the hind margin, transversely raised between the tumid shoulders, and carinate down the middle of the anterior half. Elytra extending far beyond the abdomen. Mesopleura in the female strongly dilated before the laterally prominent intermediate coxæ, narrower in the male. Abdomen short, not more than one-half the length of the thorax in the male, broad in the female; sixth connexival segment unarmed at the apex; two short genital segments visible from above in both sexes; the venter neither grooved nor carinate. Posterior legs with the femora about one-fourth longer than the tibia and tarsus united, the first joint of the tarsi twice as long as the second.

Var. The posterior lobe of the pronotum black, the hind margin excepted; the black markings of the under surface more extended.

Apterous form. Pronotum short, not extending backwards over the mesonotum; the latter with a median line or vitta and a small spot on each side ochraceous, the lateral spot sometimes extended and forming a marginal stripe, in some specimens (♂) with the anterior half ochraceous or ferruginous, a black line on each side excepted.

♂. Anterior femora stout, strongly curved at the base, hollowed beneath; sixth ventral segment subangularly emarginate at the apex.

♀. Anterior femora very feebly curved at the base and less thickened.

Length $5\frac{1}{4}$–$9\frac{1}{2}$, breadth 2–$3\frac{1}{2}$ millim.

Hab. Mexico (*Sallé, in Mus. Holm.; Mus. Roy. Belg.; Mus. Vind. Cæs., ex coll. Signoret*), Puebla, Cuernavaca, Tacubaya (*Bilimek, in Mus. Vind. Cæs.*); Guatemala, Guatemala city, San Gerónimo (*Champion*).

Found in plenty in all its forms at San Gerónimo, and apparently not uncommon in Mexico. The variety is represented by a discoloured winged male specimen from

Mexico in the Signoret collection, this being labelled with the MS. name *A. lineola*. The males of this species are constantly very much smaller than the females, and they have stout, curved anterior femora. The abdomen is short, with short genital segments. In the apterous form the pronotum is reduced to the anterior lobe, and the mesonotum varies in colour. The metasternum and venter are without trace of groove or carina. The two oblique black stripes on the mesosternum vary in length, these being greatly extended in the variety described. The abdomen is much shorter than in *G. mexicanus*. An apterous male and a winged female from San Gerónimo and an apterous female from Mexico are figured.

LIMNOMETRA.

Limnometra, Mayr, Verh. zool.-bot. Ges. Wien, xv. p. 444 (1865); Reise der Novara, Hemipt. p. 174.

The two species here referred to *Limnometra*, Mayr, have very elongate, slender antennæ, with an elongate apical joint, the anterior tarsal joints subequal in length, the head and pronotum opaque, and the pronotum (in the winged forms) subtriangularly produced behind (instead of rounded, as in *Gerris*). The species noticed by Mayr are all eastern. All but one of the Central-American specimens seen are winged. Our two species may be separated thus:—

Head and anterior lobe of the pronotum without black lines; pronotum grooved behind, the lateral and posterior margins without flavescent line; apical joint of the antennæ very elongate	*opaca*, n. sp.
Head and anterior lobe of the pronotum with black lines; pronotum not grooved behind, the lateral and posterior margins more or less flavescent; apical joint of the antennæ moderately elongate	*quadrilineata*, n. sp.

1. **Limnometra opaca**, n. sp. (Tab. IX. figg. 16, ♂; 16 *a*, body from beneath, ♂.)

Winged form. Rather narrow, opaque, brownish-ferruginous above, ochraceous or pale ochraceous at the sides and beneath; the head with a spot in front and a streak on each side between the eyes, and the pronotum with a spot at the hind angles and the groove within the posterior margin, blackish-brown, the pronotum with a posteriorly narrowing pallid median line on the anterior lobe, bordered on each side with reddish-brown; the pleura streaked with reddish-brown; the elytra blackish-fuscous, with the nervures darker; the wings blackish; the antennæ blackish or fuscous; the legs fuscous, with the anterior femora pale at the base; the elytra, and the sides of the disc and the posterior groove of the pronotum, clothed with fine golden pubescence; the under surface and pleura with pallid pubescence, the ante-coxal pieces of the meso- and metapleura each with a conspicuous silvery-pubescent spot. Antennæ exceedingly slender, reaching the tip of the elytra, joint 1 one-fourth longer than 2, 3 a little longer 1, 4 very elongate, more than twice as long as 2. Pronotum carinate down the middle, the posterior margin grooved within. Mesopleura moderately dilated before the intermediate coxæ. Anterior tibiæ straight. Anterior tarsal joints subequal in length. Posterior legs with the femora nearly one-half longer than the tibia and tarsus united, the first joint of the tarsi almost twice as long as the second. Rostrum nearly reaching the middle of the mesosternum. Mesosternum grooved down the middle.

♂. Metasternum carinate down the middle; sixth connexival segment obtuse at the outer apical angle; sixth ventral segment simply arcuate-emarginate at the apex; anterior femora bowed and moderately thickened.

♀. Sixth connexival segment acutely produced at the outer apical angle; sixth ventral segment produced in the middle at the apex, the segments 3–5 carinate; anterior femora rather slender, feebly curved at the base.
Length $6\frac{1}{4}$–8, breadth $1\frac{3}{4}$–$2\frac{1}{2}$ millim. (♂ ♀.)

Hab. Panama, Bugaba, San Miguel in the Pearl Is. (*Champion*).

Found in plenty at Bugaba; two specimens only from San Miguel. Easily distinguishable by the very long and exceedingly slender antennæ with unusually elongate apical joint, the opaque, posteriorly grooved, ferrugineo-testaceous pronotum, &c. The pronotal groove is filled with golden pubescence.

2. **Limnometra quadrilineata,** n. sp. (Tab. IX. fig. 17, ♀.)

Winged form. Rather narrow, opaque; the head fulvous or ochraceous, with a **V**-shaped mark in the middle, and a streak on each side between the eyes, black; the pronotum nigro-fuscous, with the posterior margin flavous and the lateral margins obscure fulvous, the anterior lobe with a narrow, posteriorly pointed, median vitta and the lateral margins flavous or ochraceous, and a broader stripe on each side of the disc fulvous (leaving four blackish lines); the elytra nigro-fuscous; the body beneath and the pleura flavous or ochraceous, the pleura usually with some blackish lines or spots, the mesopleura sometimes with two widely separated longitudinal blackish lines; the abdomen above ferruginous, maculated with fuscous, the connexival margins pale; the antennæ blackish; the legs fuscous, the anterior femora pale at the base; the pronotum and elytra somewhat thickly clothed with fine golden pubescence, the under surface and pleura with pallid or whitish pubescence, the ante-coxal pieces of the meso- and metapleura with a silvery-pubescent spot. Antennæ slender, reaching to a little beyond the hind coxæ, joints 1 and 3 subequal in length, 2 much shorter, 4 a little longer than 1. Pronotum obsoletely carinate down the middle of the posterior lobe, the posterior margin thickened. Mesopleura moderately dilated before the intermediate coxæ. Anterior legs with the femora rather slender in both sexes, the tibiæ straight, the tarsal joints subequal in length. Posterior legs with the femora about one-fourth longer than the tibia and tarsus united, the first joint of the tarsi about three times the length of the second. Mesosternum grooved down the middle.

♂. Metasternum longitudinally swollen in the middle; sixth connexival segment obtuse at the outer apical angle; sixth ventral segment depressed behind, simply emarginate at the apex.

♀. Sixth connexival segment produced into a long lobe at the apex, reaching as far as the last genital segment.
Length $7\frac{1}{10}$–$9\frac{1}{2}$, breadth 2–$2\frac{3}{4}$ millim. (♂ ♀.)

Hab. Mexico (*Sallé, in Mus. Holm.*); Nicaragua, Chontales (*Janson*).—Brazil, Pernambuco.

Three females and one male from Chontales, and a mutilated male from Mexico. In one of the females from Chontales the elytra are abbreviated, reaching very little beyond the apex of the fifth abdominal segment. Two females from Pernambuco in the British Museum also appear to belong to this species. Allied to *L. opaca*, but differing from it in the nigro-lineate head and anterior lobe of the pronotum, the pronotum without groove behind, the shorter apical joint of the antennæ, the longer basal joint of the hind tarsi, &c. A female from Chontales is figured.

LIMNOGONUS.

Limnogonus, Stål, Hemipt. Fabric. i. p. 132 (1868).
Lamprotrechus, Reuter, Öfv. Finska Vet.-Soc. Förh. xxv. p. 40 (1882).

The two species of *Limnogonus* occurring within our limits have a very distinct

facies, due to their shining head and pronotum; they have, moreover, a rather short basal joint to the anterior tarsi, this character separating them from *Limnometra*. The pronotum in the winged forms is subtriangularly produced behind.

Two species from the Amazons were doubtfully included in *Limnogonus* by Buchanan White. The Central-American forms may be differentiated thus:—

Pronotum distinctly carinate; sixth connexival segment pointed at the outer apical angle in the ♀; first genital segment simple in the ♂ . . . . . *marginatus*, Guér.

Pronotum not carinate; sixth connexival segment acutely produced at the outer apical angle in the ♀; first genital segment acutely produced beneath in the ♂ . . . . . *hyalinus*, Fabr.

1. Limnogonus marginatus.

Gerris marginatus, Guér. Icon. Règne Anim., Ins. p. 351, t. 57. fig. 2 [1]; in Ramon de la Sagra's Hist. fis., polit. y nat. de Cuba, Ins. p. 173 [2].

Limnometra marginata, Uhler, P. Z. S. 1893, p. 706 [3]; 1894, p. 212 [4].

Gerris guerini, Leth. et Sev. Cat. gén. Hémipt. Hétéropt. p. 61 [5].

Winged form. Rather slender; the head and pronotum shining, black, the head with two longitudinal lines, united posteriorly, and the sides behind, ochraceous; the pronotum with the lateral and posterior margins narrowly, two short lines on the anterior lobe, and a narrow median line extending thence to near the apex, becoming indistinct behind, flavous or ochraceous; the elytra blackish-brown, streaked with pale brown on their inner half (much paler when opened); the wings white and iridescent; the body beneath and the pleura ochraceous, the pleura broadly striped with black, the venter with a row of dark spots or an evanescent black line on each side; the abdomen above ochraceous, striped with black; the antennæ and legs fuscous or blackish, the anterior femora paler at the base; above sparsely clothed with very short fine brownish pubescence; the under surface and pleura thickly clothed with silvery pubescence. Antennæ about reaching the hind coxæ, slender, joint 1 slightly longer than 4, 2 and 3 subequal in length, each shorter than 4. Pronotum with a distinct median ridge anteriorly, the posterior margin thickened, the anterior lobe distinctly defined. Elytra with prominent nervures. Mesopleura moderately dilated before the intermediate coxæ. Sixth connexival segment pointed at the outer apical angle. Mesosternum canaliculate anteriorly. Legs slender; anterior femora and tibiæ almost straight, the femora a little thickened; anterior tarsi with joint 1 much shorter than 2; posterior femora nearly one-half longer than the tibia and tarsus united, the first tarsal joint almost twice as long as the second.

♂. Anterior femora stouter and slightly curved; anterior tibiæ feebly curved, sinuous within; sixth ventral segment simply arcuate-emarginate at the apex; first genital segment not produced at the middle of the apical margin beneath.

Length 7–7$\frac{1}{8}$, breadth 1$\frac{2}{3}$–1$\frac{4}{5}$ millim. (♂ ♀.)

Hab. Mexico, Teapa in Tabasco (*H. H. Smith*); British Honduras, Belize (*Blancaneaux*).—Antilles, Cuba [1 2 5], St. Vincent [3], Grenada [4].

Of this species we have obtained three specimens from Central America, all females. They are smaller and narrower, and have more slender legs, than most of the examples I have seen from the Antilles; the latter, however, vary greatly in size.

As there may be some doubt as to whether this or the following closely allied species is really referable to *L. marginatus*, a full description is given from the Central-American females before me; the male-characters are taken from the Grenada and

St. Vincent examples in the British Museum. In some of these latter the lower black patch on the mesopleura is obliterated.

2. **Limnogonus hyalinus.** (Tab. IX. fig. 18, ♂.)

Hydrometra hyalina, Fabr. Syst. Rhyng. p. 258 (1803)[1].

Limnogonus hyalinus, Stål, Rio Jan. Hemipt. i. p. 133[2].

Winged form. Rather robust, the head and pronotum shining, black, the head with two longitudinal lines, united posteriorly, and the sides behind, ochraceous; the pronotum with the lateral and posterior margins narrowly, two short lines on the anterior lobe, and a narrow median line extending thence to the apex, flavous or ochraceous; the elytra blackish-brown, streaked with paler brown on their inner half; the body beneath and the pleura ochraceous, the pleura streaked with black, the venter also with a black line on each side; the antennæ blackish, with the basal half brown; the rostrum ochraceous, black at the tip; the legs brownish, the anterior femora paler towards the base; above thickly clothed with very short, fine, brownish pubescence, modifying the ground-colour; the under surface and the pale streak between the black stripes on the pleura thickly clothed with silvery pubescence. Antennæ about reaching the hind coxæ, slender, joint 1 slightly stouter, 1 and 3 subequal in length, 2 a little shorter than 1, 3 shorter than 2. Pronotum not carinate, with the posterior margin thickened, the short anterior lobe distinctly defined. Elytra with thickened and very prominent nervures. Mesopleura strongly dilated before the intermediate coxæ. Mesosternum canaliculate anteriorly. Anterior femora and tibiæ slightly curved and rather stout in both sexes. Anterior tarsi with joint 1 very much shorter than 2. Posterior legs with the femora about one-fourth longer than the tibia and tarsus united, the first tarsal joint twice as long as the second.

♂. Sixth connexival segment pointed at the outer apical angle; sixth ventral segment simply arcuate-emarginate; first genital segment acutely produced at the middle of the apical margin beneath.

♀. Sixth connexival segment acutely produced at the outer apical angle, nearly reaching the tip of the last genital segment.

Length $8\frac{1}{2}$–10, breadth $2\frac{1}{2}$–$3\frac{1}{10}$ millim.

Hab. PANAMA, Panama city (*Champion*).—SOUTH AMERICA[1 2], Cayenne.

Two females and one male were obtained at Panama, and I have seen a male of the same species from Cayenne. This insect is very like *L. marginatus*, but differs from it in the non-carinate pronotum, the flavescent median line of which is very distinct; the female, moreover, has the connexivum more acutely produced at the apex, and the male has the apex of the first genital segment produced into a point beneath.

BRACHYMETRA.

Brachymetra, Mayr, Verh. zool.-bot. Ges. Wien, xv. p. 445 (1865); Reise der Novara, Hemipt. p. 178.

1. **Brachymetra albinervus.** (Tab. IX. figg. 19, 19 *a*, ♂.)

Halobates albinervus, Am. et Serv. Hist. Nat. Ins. Hémipt. p. 412[1].

Brachymetra albinervus, Mayr, Verh. zool.-bot. Ges. Wien, xv. p. 445[2]; Reise der Novara, Hemipt. p. 178, t. 5. figg. 55 *a*, *b*[3]; Uhler, P. Z. S. 1893, p. 706[4]; 1894, p. 212[5]; Kirk. Entom. 1898, p. 101[6].

Hab. PANAMA, Bugaba (*Champion*).—BRAZIL[2 3 6], Goya[1], Rio Janeiro[5]; ANTILLES, St. Vincent[4 5 6], Grenada[5 6].

Twelve winged specimens of this species were obtained in Chiriqui. The males have the sixth ventral segment simply emarginate at the apex; two upwardly curved spines or hooks, one on each side of the hidden penultimate genital dorsal segment, are visible from beneath in this sex, as described by Mayr. In the winged form the pronotum is very feebly constricted at the sides, the anterior lobe being completely fused with the posterior lobe, without trace of suture.

POTAMOBATES, n. gen.

Head subtriangular, produced and declivous in front, angularly dilated on each side above the insertion of the antennæ; the eyes rather coarsely faceted, large, oblique, somewhat narrowly separated anteriorly, and feebly emarginate posteriorly; rostrum 4-jointed, short, reaching the front of the mesosternum; antennæ about half the length of the body, joint 1 nearly as long as the others united, 4 longer than 3, 2 and 3 separated by a distinct jointlet. Thorax elongate-trapezoidal, gradually widening to the intermediate coxæ; the pleura broad and laterally prominent, the propleura rounded externally and extending outwards to at least as far as the eyes, the mesopleura still wider; the pronotum in the winged form covering the mesonotum, rather narrow, gradually widening to the shoulders and rounded behind; the mesothorax separated from the metathorax by a deep sinuous suture, the metapleura rounded laterally in front and widening to the laterally prominent hind coxæ. Abdomen rather short, with broad, raised connexivum, which is slightly produced at the outer apical angle; two genital segments visible above and beneath in the male, one in the female; genital segments in the male subcylindrical, the first as long as the two or three preceding segments united, the second narrower, both asymmetrically formed; terminal genital dorsal segment in the female subtriangular and as long as the preceding segment, the terminal genital ventral segment triangular, membranous, and separate, in this sex. Anterior legs short, the coxæ widely separated; the femora stout, becoming incrassate towards the base; the tibiæ curved at the apex, with the inner apical angle sharp; the tarsi with the basal joint short, not half the length of the second. Intermediate and hind legs very elongate; hind femora thinner and longer than the intermediate femora, about one and three-fourths the length of the tibia and tarsus united; second joint of the hind tarsi much shorter than the first. Body rarely winged, the mesonotum flattened and shining in the apterous forms.

This genus forms a connecting link between the freshwater Halobatine forms, *Platygerris* &c., and the normal Gerrids. It differs from *Platygerris* in the larger and more oblique eyes, which are somewhat narrowly separated in front, the much longer abdomen, the elongate-trapezoidal mesothorax, with the pleura not distinctly separated from the notum, the elongate first genital segment in the male, &c. As in *Platygerris* and various species of *Halobates*, the genital segments are asymmetrically formed in the male. From *Gerris* and its allies, the present genus differs in the shape of the head, eyes, and mesothorax, as well as in the asymmetrical genital segments of the male. The two species may be separated thus:—

Pronotum with a large triangular ochraceous patch on the anterior lobe; antennæ with joints 2 and 3 subequal in length; first genital segment unidentate on the right side at the apex beneath in the ♂ . . . . . *unidentatus*, n. sp.

Pronotum with a narrow ochraceous median line; antennæ with joint 2 longer than 3; first genital segment bidentate on the right side at the apex in the ♂ . . . . . *bidentatus*, n. sp.

1. **Potamobates unidentatus,** n. sp. (Tab. IX. figg. 20, apterous ♂; 20 *a*, ditto, from beneath; 20 *b*, ditto, first genital segment; 20 *c*, ditto, second genital segment, from the side, opened, to show the angular dilatation of one side; 21, winged ♀.)

Winged form. Broad, moderately elongate, black; the head with a posteriorly widened median vitta between the eyes and the sides in front, the pronotum with a broad triangular patch at the base of the anterior lobe and the sides and hind margin of the posterior lobe, an elongate mark on the metanotum, the connexival margins, the body beneath, the lower part of the pleura (a short streak in front of the intermediate coxæ excepted), the coxæ and trochanters, and the basal half of the rostrum, ochraceous or flavous; the legs blackish, with the anterior femora above and in front to near the apex and at the base beneath, the posterior femora at the base beneath, the intermediate tibiæ towards the apex, and the intermediate tarsi, obscure testaceous, the anterior femora paler at the base; the elytra and wings brown, the elytra paler along the costa; the head, the pro-, meso-, and metanotum, and the abdomen, shining, the pleura and under surface opaque; above and beneath finely pubescent, the mesopleura with a narrow longitudinal stripe and two triangular patches behind, the pro- and metapleura each with a triangular patch, the sides of the metanotum behind, and the outer margins of the dorsal segments of the abdomen, golden-pubescent, the pubescence of the under surface paler than the ground-colour; the base of the anterior femora with a few long bristly hairs in front and behind. Antennæ with joint 1 nearly or quite as long as 2–4 united, 2 and 3 subequal in length, each shorter than 4. Pronotum obsoletely carinate down the middle of the posterior lobe. Propleura extending outwards to about as far as the eyes. Mesopleura very broad throughout, extending laterally to far beyond the posterior lobe of the pronotum, gradually widening to the intermediate coxæ. Elytra extending to considerably beyond the abdomen, the wings about one-third shorter. Abdomen with an oblong smooth spot on the middle of each of the dorsal segments.

Apterous form. Pronotum short, transverse. Mesonotum flattened and shining, with a median vitta, and a small triangular spot on the disc on each side of it a little beyond the middle, and sometimes a line extending from the spots downwards, ochraceous.

♂. Terminal ventral segment abruptly transversely depressed beyond the middle, the apex deeply arcuate-emarginate in the centre, the apical margin ciliate; first genital ventral segment obliquely sulcate, with the apical margin produced into a prominent pointed tooth on the right side only; second genital segment broadly and angularly dilated on the right side near the base; sixth connexival segment a little produced at the outer apical angle, the apex obtuse.

♀. Sixth connexival segment more pointed at the outer apical angle.

Length 8–8$\frac{1}{2}$, to end of the elytra 10, breadth 2$\frac{1}{4}$–2$\frac{3}{4}$ millim.

Hab. Panama, Bugaba (*Champion*).

One winged female and numerous apterous specimens of both sexes have been obtained of this species. The asymmetrical armature of the two genital segments of the male is quite constant. The anterior femora sometimes have the base only testaceous. The mesothorax in the apterous form is about two and one-half times the length of the prothorax; it is shaped somewhat as in *Platygerris*, but the mesopleura are narrowed forwards.

2. **Potamobates bidentatus,** n. sp. (Tab. IX. figg. 22, ♂; 22 *a*, ditto, genital segments, from beneath.)

Apterous form. ♂. Broad, elongate, black; the head with a short stripe between the eyes, the pronotum with a narrow median line on the anterior lobe, the coxæ, the under surface (a small spot on each side of the mesosternum beyond the middle excepted), and the base and underside of the anterior femora, ochraceous, the intermediate tibiæ and tarsi obscure ferruginous; the upper surface, the pleura excepted, somewhat shining; above and beneath finely pubescent, the lower part of the propleura, a longitudinal stripe on the mesopleura, two triangular patches on the latter behind and one on the metapleura, and the sides of

the dorsal segments of the abdomen, silvery-pubescent, the pubescence of the under surface paler than the ground-colour; the anterior femora with a few bristly hairs at the base in front. Antennæ with joint 1 nearly as long as 2–4 united, 2 and 4 subequal in length, 3 considerably shorter. Pronotum short, transverse, depressed in the centre. Mesonotum about two and one-half times the length of the pronotum finely canaliculate down the centre behind, the channel continued on the metanotum. Propleura extending outwards to beyond the eyes. Mesopleura very broad throughout, gradually widening to the intermediate coxæ. Anterior femora very stout, becoming strongly incrassate towards the base. Sixth connexival segment rounded at the outer apical angle. Terminal ventral segment transversely depressed beyond the middle, the apex broadly arcuate-emarginate, the apical margin ciliate. First genital segment without sulcus at the base beneath, as long above as the three preceding segments united, the lower apical margin produced on the right side into two prominent somewhat widely separated teeth. Second genital segment with a long projecting process, which is subtriangularly dilated at the apex, at the base on the right side beneath.

Length 11, breadth $3\frac{1}{10}$ millim.

Hab. MEXICO (*Sallé, in Mus. Holm.*).

One example. Larger and more robust than the male of the apterous form of *P. unidentatus*, with the meso- and metanotum immaculate, the anterior lobe of the pronotum broader and with a narrow flavescent median line, the second antennal joint more elongate, the anterior femora stouter, the first genital segment longer and bidendate at the apex beneath, &c. The long chitinous process arising from the base of the terminal segment on the right side (from the left side as seen from above) is visible between the two teeth; it is abruptly truncate at the apex.

PLATYGERRIS.

Platygerris, Buchanan White, Ent. Monthly Mag. xx. p. 36 (1883).

The apterous Mexican insect referred to this genus has been described at great length by Buchanan White. A second species, from Costa Rica, of which we possess a winged example, is now added. They live upon the surface of fresh water.

1. **Platygerris depressus.** (Tab. IX. figg. 23, ♂; 24, apex of the abdomen from above, ♀; 24 *a*, ditto, from behind.)

Platygerris depressa, Buch. White, loc. cit. pp. 36–39 (♂)[1].

Hab. MEXICO (*Mus. Berol.*[1]: ♂), Teapa in Tabasco (*H. H. Smith*: ♂ ♀).

Two pairs of this species have been received from Teapa. The females have the apex of the last ventral segment subtriangularly produced in the middle and furnished on each side with a rather long narrow lobe, these being conspicuous from above; the first genital ventral segment is vertical and fissured to the base, the apex of the abdomen appearing abruptly truncate. The insect is described as black, but the specimens before me, including one of the types, have a bluish or æneous lustre above.

Buchanan White, in describing the form of the genital segments of the male, assumed that they were distorted in drying; but this is not the case, the armature being asymmetrical, as in various other species of the group: the first genital ventral segment * is

* The second segment of Buchanan White, his first genital segment being here regarded as the terminal ventral.

somewhat twisted on the right side posteriorly, and there produced into a very long spiniform process, and the second genital dorsal segment is armed on the same side at the base beneath (the left side as seen from above) with a very long, acute, slightly curved spine. The three males seen agree precisely in this respect.

2. **Platygerris cæruleus,** n. sp. (Tab. IX. fig. 25, ♀.)

Winged form. ♀. Broad, parallel; black, the head, the anterior lobe of the pronotum, the metanotum, pleura, and legs with a greenish or bluish-green lustre, the rest of the pronotum nigro-cæruleous; the head with an oval spot between the eyes and the pronotum with a median line on the anterior lobe fulvous; the anterior femora at the base beneath, the intermediate and hind coxæ beneath, a spot on the underside of the ante-coxal pieces of the meso- and metapleura, the prosternum, and venter ochraceous; the elytra and wings smoky-brown; the under surface and pleura thickly clothed with short silvery pubescence, the pronotum and legs with greyish pubescence, the anterior femora with a few long hairs on the lower edge; the head, pronotum, and mesonotum shining, the pleura and under surface opaque. Antennæ with joint 1 very elongate, about three times as long as 2 (3 and 4 broken off). Pronotum gradually widening posteriorly, rounded behind, leaving the metanotum exposed, sharply separated laterally from the mesopleura, the hind angles tumid, the anterior lobe broadly depressed in the middle. Mesopleura broad and parallel. Elytra as long as the entire body, and about one-third longer than the wings. Anterior femora stout, a little shorter than the tibiæ, the latter considerably produced at the apex within. Posterior femora longer than the intermediate femora, the intermediate tibiæ not half the length of the femora of the same pair of legs. Terminal ventral segment with a broad, transverse, vertical, upwardly directed plate at the apex, covering the genital segments.

Length 8, to tip of the elytra 12, breadth $3\frac{1}{4}$ millim.

Hab. Costa Rica, Irazu (*Rogers*).

One specimen. Larger and more parallel than *P. depressus*, with a more elongate basal joint to the antennæ, and very differently formed terminal ventral segment.

TREPOBATOPSIS, n. gen.

Head very broad, short, convex, produced and declivous in front, angularly dilated on each side above the insertion of the antennæ, broadly emarginate behind for the reception of the pronotum; the eyes finely faceted, large, oblique, and widely separated; rostrum short, reaching the front of the mesosternum; antennæ nearly as long as the body (exclusive of the genital segments), 4-jointed, 1 very elongate, curved at the base, longer than the others united, 2 and 3 (♂) furnished with dentiform processes at the apex beneath. Pronotum very short, much narrower than the head (with the eyes), subtruncate in front and behind, rounded at the sides, and depressed in the middle; the propleura vertical, narrowing downwards, and not visible from above. Mesonotum trapezoidal, sinuate at the sides, and trisinuate behind, not distinctly separated laterally from the pleura; the latter very broad, rounded at the sides in front, extending forwards as far as the eyes and backwards to beneath the metapleura. Metanotum with a deep oblique groove on each side; metapleura broad, extending backwards to as far as the apex of the second dorsal abdominal segment. Abdomen very short, with moderately broad, flattened connexivum, the six segments united shorter than the mesonotum; first genital segment (♂) very broad, parallel, as long as the three preceding segments united, covering two small terminal segments, which are not visible from above. Anterior coxæ narrowly separated, the ante-coxal pieces received in the cavity beneath the eyes; anterior femora (♂) slender, about one-third longer than the tibia, armed with a stout tooth on the lower edge; anterior tibiæ armed with a strong curved tooth at the inner apical angle; anterior tarsi 2-jointed, about half the length of the tibia, joint 1 short, 2 about three times as long as 1, with the two claws inserted at about the middle beneath. Intermediate femora a little stouter than, and about two thirds the length of, the posterior femora; the latter extremely elongate, and nearly three times the length of the tibiæ of the same pair of legs. Mesosternum separated from the mesopleura by a well-defined groove, which extends forwards to beyond the middle. Body short, broad, depressed, apterous.

The remarkable insect from which the above characters are taken is perhaps nearest allied to *Trepobates*, Uhler (= *Stephania*, Buch. White). The greatly developed mesonotum, with the broad pleura extending forwards as far as the eyes, gives it a peculiar facies. The armature of the second and third joints of the antennæ, and also that of the anterior femora, is probably a male-character. The hind femora, as in *Trepobates* and *Metrobates*, are very much longer than the intermediate femora. (In the unique example seen the intermediate tibiæ and tarsi are broken off.) In Bianchi's arrangement of the Halobatini * it would come near *Metrobates*, Uhler †, this genus having a similarly elongate basal joint to the antennæ.

1. **Trepobatopsis denticornis,** n. sp. (Tab. IX. figg. 26, ♂; 26 *a*, antenna.)

♂. Black, opaque; a broad sinuous stripe on the mesopleura, a stripe down the middle of the mesonotum, two spots on the metanotum, as well as the sides, the middle and sides of the dorsum of the abdomen, and the metapleura, grey: the head with two oblique ferruginous spots at the base; the pronotum with a rounded ochraceous spot in the centre; the under surface bluish-grey, the apex of the abdomen and a spot on the ante-coxal pieces of the mesopleura ferruginous or ochraceous; the first antennal joint at the base beneath, and the second joint to near the tip, ochraceous; above and beneath, the legs, and antennæ clothed with short pubescence, the pubescence on the under surface whitish, the basal joint of the antennæ with a few long projecting hairs beneath. Antennæ not very slender, joint 1 about three and one-half times as long as 2, 2 and 4 subequal in length, 3 shorter than 2, 4 fusiform; joint 2 armed with two, and 3 with four, blunt, downwardly projecting teeth at the apex beneath. Anterior femora armed with a stout projecting tooth on the lower edge a little beyond the middle. Terminal ventral segment deeply arcuate-emarginate at the apex.

Length $3\frac{1}{2}$, breadth 2 millim.

Hab. Mexico (*Sallé, in Mus. Holm.*).

Fam. HENICOCEPHALIDÆ.

HENICOCEPHALUS.

Enicocephalus, Westwood, Trans. Ent. Soc. Lond. ii. p. 22 (1837); Stål, Rio Jan. Hemipt. p. 81 (1858); Ashmead, Proc. Ent. Soc. Wash. ii. pp. 328, 329.
Henicocephalus, Bergroth, Rev. d'Ent. viii. p. 319; xii. p. 155.
Systelloderes, Blanchard, in Gay's Hist. fis. y polit. de Chile, Zool. vii. p. 224 (1852).
Oncylocotis, Stål, Öfv. Vet.-Ak. Förh. xii. p. 44 (1855).
Stenopirates, Walker, Cat. Hemipt. Heteropt. vii. p. 139 (1873).
Henschiella, Horvath, Rev. d'Ent. vii. p. 169 (1888).
Dicephalus, Kirby, Journ. Linn. Soc., Zool. xxiv. p. 115 (1891).
Hymenodectes, Uhler, Trans. Maryland Acad. Sci. 1892, p. — ‡.
Hymenocoris, Uhler, loc. cit. p. —.

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* Ann. Mus. Zool. St. Pétersb. 1896, p. 71.

† Since these pages have been in type an apterous specimen of *M. hesperius* has been received from Prof. Uhler. It is very like *P. denticornis*, but has much narrower mesopleura, the anterior legs differently formed, the head less emarginate behind, &c.

‡ I have not been able to see a copy of this work.

This extraordinary genus contains fourteen described species, half of which are American *. Six are known to me from Central America, five of them being here treated as new. Some authors (including Westwood) describe the intermediate and hind tarsi as 3-jointed; but there are in reality only two joints—a short basal and a long apical one. I am unable to distinguish the sexes.

The anterior tarsi in some species have two long claws at the apex, and in others (including *H. flavicollis*, Westw.) one only. The tarsi themselves are retractile inwards, and the insect is thus enabled to grasp its prey between the long claw or claws and the sharp tibial spurs. The anterior tibiæ are more or less grooved along their inner face towards the apex.

The six Central-American species may be tabulated thus:—

a. Discal cell of the elytra closed; posterior lobe of the head transverse, dull, pilose. [HYMENOCORIS, Uhl.]
  a'. Anterior tarsi with two long claws.
    a''. Antennæ with joints 1 and 2 much stouter than the others, the latter very slender; pronotum deeply emarginate behind; posterior lobe of the head strongly transverse; ocelli very small; pilosity of the head and pronotum short; legs unicolorous . . *concolor*, n. sp.
    b''. Antennæ with the two basal joints a little stouter than the others; pronotum less deeply emarginate behind; posterior lobe of the head moderately transverse; ocelli prominent; pilosity of the head and pronotum long; legs annulate . . . . . *annulipes*, n. sp.
  b'. Anterior tarsi with a single long claw; posterior lobe of the head strongly transverse; pronotum deeply and angularly emarginate behind.
    c''. Antennæ elongate, the three outer joints slender; ocelli very small; pilosity of the head and pronotum close; intermediate lobe of the pronotum broad and as long as the posterior lobe . . . . *pilosus*, n. sp.
    d''. Antennæ much shorter, the two outer joints slender; ocelli prominent; pilosity of the head and pronotum sparse; intermediate lobe of the pronotum short, much narrower than the posterior lobe . . . . . *emarginatus*, n. sp.
b. Discal cell of the elytra open; posterior lobe of the head subglobose, smooth, shining; anterior tarsi with two long claws. [HYMENODECTES, Uhl.]
  c'. Rather robust, anterior legs very stout, intermediate lobe of the pronotum longer than the posterior lobe . . . . . *angustatus*, n. sp.
  d'. Slender, anterior legs moderately stout, intermediate lobe of the pronotum not longer than the posterior lobe . . . . . *culicis*, Uhler.

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* Two others, from Venezuela, have been noticed by Dr. Bergroth (Rev. d'Ent. viii. p. 319), but he has not yet published descriptions of them.

1. **Henicocephalus concolor,** n. sp. (Tab. X. fig. 1.)

Shortly pilose, dull, rather robust, fuscous, the rostrum and the abdomen more or less ochraceous, the latter with the sides reddish, the legs uniformly fuscous or fusco-testaceous. Posterior lobe of the head very convex, transverse, finely sulcate down the middle, extending outwards as far as the eyes, the ocelli very small; antennæ rather short, joints 1 and 2 much stouter than the others, the latter very slender, 2–4 subequal in length. Pronotum with a short collar in front; the intermediate lobe moderately convex, much narrower than the posterior lobe, but equalling it in length, rounded at the sides, with a deep transverse groove in the middle behind and a short longitudinal sulcus on each side posteriorly; the posterior lobe somewhat flattened on the disc, rounded at the sides, deeply emarginate behind. Scutellum longitudinally convex at the apex. Anterior legs very stout, the tarsi with two long divergent claws.

Length 4 millim.

Hab. GUATEMALA, near the city (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Two specimens. In this species the two basal joints of the antennæ are conspicuously stouter than the others, these latter being very slender; the pilosity of the head and pronotum is comparatively short; the pronotum is deeply emarginate at the base and has a deep transverse groove on the disc of the intermediate lobe; the legs are rather stout, the anterior pair greatly thickened; and the ocelli are very small. *H. rhyparus*, Stål, from Rio Janeiro, is an allied form.

2. **Henicocephalus annulipes,** n. sp. (Tab. X. fig. 2.)

Sparsely pilose, dull, nigro-fuscous, the base of the elytra, the abdomen in part, the apical joint of the antennæ, the coxæ, knees, and anterior tarsi more or less ochraceous. Posterior lobe of the head very convex, broader than long, finely sulcate down the middle, extending outwards as far as the eyes, the ocelli prominent; antennæ moderately long, joints 3 and 4 slender, 1 and 2 stouter, 2 and 3 subequal in length, 4 a little shorter than 3. Pronotum with a short collar in front; the intermediate lobe moderately convex, much narrower than the posterior lobe, but equalling it in length, rounded at the sides, deeply sulcate down the middle and with a short longitudinal sulcus on each side behind, the median sulcus terminating posteriorly in a deep transverse groove; the posterior lobe rounded at the sides and moderately emarginate behind. Scutellum longitudinally carinate at the apex. Anterior legs with the femora moderately incrassate, the tibiæ strongly dilated outwards, and the tarsi with two long slender approximate claws.

Length 4 millim.

Hab. PANAMA, Volcan de Chiriqui 3000 feet (*Champion*).

Two examples. Narrower and less robust than *H. concolor*, the two basal joints of the antennæ relatively more slender, the posterior lobe of the head less transverse, the ocelli more prominent, the pronotum not so deeply emarginate behind, the knees pale, the hairs on the head and pronotum longer. The anterior tarsal claws are so closely placed that at first sight one only is visible.

3. **Henicocephalus pilosus,** n. sp. (Tab. X. fig. 3.)

Thickly pilose, dull, fusco-ferruginous, the antennæ, rostrum, abdomen, and legs flavo-testaceous, the elytra brownish-hyaline. Posterior lobe of the head very convex, transverse, extending outwards to fully as far as the eyes, obsoletely sulcate down the middle behind, the ocelli very small; antennæ comparatively elongate, reaching to a little beyond the shoulders of the pronotum, joints 1 and 2 slightly stouter than the others, 1 short, 2–4 subequal in length. Pronotum with a short collar in front; the intermediate

lobe convex, not much narrower than the posterior lobe, and laterally as long as it, rounded at the sides, deeply sulcate down the middle and with a short distinct longitudinal sulcus on each side behind, the median sulcus terminating posteriorly in a deep transverse groove; the posterior lobe moderately convex, very deeply and angularly emarginate behind, leaving the scutellum largely exposed, the sides rounded. Scutellum feebly transversely swollen at the apex. Anterior legs with the femora moderately incrassate, the tibiæ broadly dilated outwards, and the tarsi with a single long claw.

Length $4\frac{1}{3}$ millim.

Hab. GUATEMALA, Cerro Zunil 5000 feet (*Champion*).

One specimen. Differs from *H. emarginatus* in the small ocelli, the broader posterior lobe of the head, the long antennæ, the broader and longer intermediate lobe of the pronotum, the more thickly pilose head and pronotum, &c.

4. **Henicocephalus emarginatus,** n. sp. (Tab. X. figg. 4; 4 *a*, anterior leg.)

Sparsely pilose, fuscous, the pronotum paler in front, the rostrum, neck, abdomen, and legs flavous, the anterior tibiæ slightly infuscate, the elytra brownish-hyaline, the antennæ brownish, with the outer half of the apical joint flavous; the pronotum slightly shining. Posterior lobe of the head very convex, transverse, finely sulcate down the middle between the large and prominent ocelli, extending outwards to nearly as far as the eyes; antennæ about reaching the shoulders of the pronotum, joints 1 and 2 stouter than the others, 1 short, 2 slightly shorter than 3, 3 and 4 subequal in length. Pronotum with a short well-defined collar in front; the intermediate lobe shorter than the posterior lobe, convex, rounded at the sides, deeply sulcate down the middle and with a short indistinct longitudinal sulcus on each side behind, the median sulcus terminating posteriorly in a deep transverse groove; the posterior lobe moderately convex, much broader than the intermediate lobe, very deeply and angularly emarginate behind, leaving the scutellum largely exposed, the sides rounded. Scutellum with a smooth transverse convex prominence at the apex. Anterior legs with the femora feebly incrassate, the tibiæ moderately dilated outwards, and the tarsi with a single long claw.

Length $3\frac{1}{2}$ millim.

Hab. GUATEMALA, El Reposo (*Champion*).

One specimen. This species is closely allied to *H. flavicollis*, Westw., from St. Vincent; but in that insect the anterior and intermediate lobes of the pronotum are entirely flavous, the intermediate lobe is more developed, and the ocelli are smaller and less prominent.

5. **Henicocephalus angustatus,** n. sp. (Tab. X. fig. 5, head, antennæ, pronotum, and anterior legs.)

Sparsely pilose, shining, very narrow, rather robust, rufo-piceous, the antennæ, rostrum, abdomen, and legs testaceous or fusco-testaceous, the elytra pale fuscous. Posterior lobe of the head as long as broad, smooth, as wide as the anterior part (including the eyes), convex, unimpressed, the ocelli prominent; antennæ slender, the basal joint slightly stouter than the others, 2 and 3 subequal in length, 4 a little shorter than 3. Pronotum feebly emarginate in front, the narrow anterior lobe finely sulcate down the centre; the intermediate lobe convex, considerably longer than the posterior lobe, rounded at the sides, deeply sulcate down the middle, the sulcus terminating in a deep fovea posteriorly in one specimen; the posterior lobe somewhat flattened on the disc, not very deeply emarginate behind, the sides obliquely converging forwards. Scutellum longitudinally carinate at the apex. Elytra with the discal cell open. Legs comparatively stout; the anterior pair with the femora greatly incrassate, the tibiæ broadly dilated outwards, and the tarsi with two long claws.

Length 4 millim.

Hab. GUATEMALA, Volcan de Fuego 6400 feet (*Salvin*), Quezaltenango 7800 feet (*Champion*).

Two examples, both in a bad state of preservation, the one from Quezaltenango being without head. This insect is very like *H. culicis*, but apparently belongs to a different species: it is more robust, the legs are stouter, the anterior femora and tibiæ being much more thickened, the median lobe of the pronotum is relatively longer and broader, and the antennæ are a little less slender. The Quezaltenango specimen has the anterior legs enormously developed, with the tarsal claws very elongate. The elytra and wings are creased and mutilated in both examples.

6. **Henicocephalus culicis.** (Tab. X. fig. 6.)

Hymenodectes culicis, Uhler, Trans. Maryland Acad. Sci. 1892, p. —[1].
Enicocephalus (*schwarzii*, Ashm. MS.) *culicis*, Ashm. Proc. Ent. Soc. Wash. ii. p. 329 (Dec. 1892)[2].

Hab. NORTH AMERICA, Utah [1 2].—MEXICO (ex *C. F. Baker*), Omilteme in Guerrero 8000 feet (*H. H. Smith*).

The three Mexican specimens referred to this species, one of which has been received from Mr. C. F. Baker under the above name, agree very well with Mr. Ashmead's description. The insect is very like *H. angustatus*. It has the elytra subhyaline and iridescent, with the discal cell open, the scutellum longitudinally carinate at the apex, the joints 2–4 of the antennæ long and very slender, the posterior lobe of the pronotum * shallowly emarginate behind, the posterior lobe of the head smooth and subglobose, the ocelli prominent, and the lower anterior tarsal claw shorter than the upper one. *H. culicis* appears to be known from various other localities in the United States †.

Fam. REDUVIIDÆ.

Subfam. *EMESINÆ*.

The species of this subfamily of Reduviidæ are easily recognizable by their raptorial front legs, with very elongate coxæ; the head is without ocelli. In some of the genera the anterior tarsi are long, rigid, and claw-like, with the joints fused into one. *Ghilianella* and *Ploiaria* (*Cerascopus*) are completely apterous. All are very slender, elongate insects.

The systematic arrangement adopted here is a little different from that of Stål or Dohrn, more importance being attached to the form of the thorax, as may be noticed from the characters used in the subjoined key of the genera.

* Described by Mr. Ashmead as part of the mesonotum.

† *Cf.* Proc. Ent. Soc. Wash. ii. p. 330.

a. Anterior tarsi distinctly 3-jointed; pronotum fused with the mesonotum, extending backwards over the mesothorax; anterior trochanters unarmed; body winged in the fully-developed forms.	
a'. Elytra extending beyond the abdomen.	
a''. Pronotum pedunculated, abruptly widened in front and behind; anterior femora spinose from the base.	
a'''. Elytra with the apical margin almost straight	*Westermannia*, Dohrn.
b'''. Elytra with the apical margin concave	*Stenolæmus*, Sign.
b''. Pronotum oblong, trapezoidal, the posterior lobe sinuously carinate at the sides; anterior femora spinose from the base .	*Ploiariodes*, B. White.
b'. Elytra not quite reaching the apex of the abdomen; pronotum elongate, divided into two lobes of nearly equal length; anterior femora spinose from the base	*Lutevopsis*, n. gen.
c'. Elytra much shorter than the abdomen; pronotum very elongate and pedunculate, abruptly widened behind; anterior femora spinose from about the middle, the first spine not longer than the others; abdomen very long and filiform	*Gardena*, Dohrn.
b. Anterior tarsi claw-like, compressed, rigid, the joints fused into one; body winged or apterous.	
d'. Pronotum fused with the mesonotum, extending backwards over the mesothorax; anterior trochanters unarmed; anterior femora spinose from about the middle, the first spine very long; anterior tarsi biunguiculate; elytra much shorter than the abdomen, the latter very elongate and filiform	*Emesa*, Fabr.
e'. Pronotum separated from the mesonotum, the latter covering the mesothorax in the winged forms.	
c''. Anterior trochanters unarmed; body completely apterous; mesothorax produced into a long neck in front; abdomen in some species abruptly inflated at or before the apex in the males; anterior femora spinose from about the middle, the first spine very long; anterior tarsi uni-unguiculate	*Ghilianella*, Spin.
d''. Anterior trochanters armed with one or two slender spines or setæ; body winged, the elytra reaching the apex of the abdomen; anterior femora closely spinose from the base, the first spine not longer than the others; anterior tarsi uni- or bi-unguiculate *	*Luteva*, Dohrn.
e''. Anterior trochanters armed with one or two long, stout, acute spines; anterior femora spinose from the base; anterior tarsi uni-unguiculate.	
c'''. Body winged, the elytra extending beyond the abdomen; pronotum much shorter than the mesonotum; femoral spines arising from long conical teeth; eyes large . . .	*Ploiariopsis*, n. gen.
d'''. Body completely apterous; pronotum about as long as the mesonotum; eyes small	*Ploiaria*, Scop.

* Possibly uni-unguiculate in the males only.

WESTERMANNIA.

Westermannia, Dohrn, Linn. Ent. xiv. pp. 214, 251 (1860), and xv. p. 46 (1863); Stål, Enum. Hemipt. ii. p. 125.

A genus containing four or five Tropical-American species *, two of which occur within our limits. The Central-American representatives have the anterior femora armed with seven or more long spines, which are subequal in length or become a little shorter outwards, and extend from the base or near the base to near the apex, and between these spines are numerous short teeth.

The cylindrical median portion of the pronotum very elongate; anterior femora considerably longer than the tibia and tarsus united: length of the body 23–26 millim. . . . . *annulata,* Dohrn.

The cylindrical median portion of the pronotum short; anterior femora a little shorter than the tibia and tarsus united: length of the body 11 millim. . *difficilis,* Dohrn.

1. **Westermannia annulata.** (Tab. X. figg. 7, 7 *a*.)

Westermannia annulata, Dohrn, Linn. Ent. xiv. p. 251[1]; xv. p. 49[2]; Stål, Enum. Hemipt. ii. p. 125[3].

Hab. Mexico [1–3] (*Mus. Brit.*), Atoyac in Vera Cruz (*H. H. Smith*); Panama, Chiriqui (*Mus. Holm.*).

Of this very fine species I have seen three examples, the one from Atoyac measuring 26 millim. in length.

2. **Westermannia difficilis.** (Tab. X. figg. 8, 8 *a*.)

Westermannia difficilis, Dohrn, Linn. Ent. xiv. p. 251[1]; xv. p. 47[2]; Stål, Enum. Hemipt. ii. p. 125[3].

Hab. Panama, Volcan de Chiriqui 3000 feet (*Champion*).—Colombia [1–3].

In the single specimen obtained from Chiriqui the anterior coxæ are armed with a short tooth at the apex behind.

STENOLÆMUS.

Stenolemus, Signoret, Ann. Soc. Ent. Fr. 1858, p. 251; Dohrn, Linn. Ent. xiv. p. 250, and xv. p. 50; Stål, Enum. Hemipt. ii. p. 125, and iv. pp. 92, 94.

Stenolæmus, Lethierry et Severin, Cat. gén. Hémipt., Hétéropt. iii. p. 70.

1. **Stenolæmus spiniventris.**

Stenolemus spiniventris, Sign. loc. cit. p. 253, t. 6. no. 1[1]; Dohrn, Linn. Ent. xiv. p. 250[2]; xv. p. 51[3]; Stål, Stett. ent. Zeit. 1862, p. 441[4]; Enum. Hemipt. ii. p. 125[5], and iv. p. 95[6].

Hab. Mexico [1–6].

We have not received a specimen of this species, the type of which I have seen. The locality requires confirmation, the allied forms being all from the Old World.

Emesa mantis, Fabr., from the Antilles, is a *Westermannia,* closely allied to *W. annulata,* Dohrn.

PLOIARIODES.

Ploiaria, Scopoli, Del. Floræ et Faunæ Insubr. iii. p. 51 (1788) (part.); Dohrn, Linn. Ent. xiv. p. 214, and xv. p. 55; Stål, Enum. Hemipt. iv. pp. 92, 94.
Plœaria, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 396.
Ploiariodes, Buchanan White, Ann. & Mag. Nat. Hist. (5) vii. p. 58 (1881).
Ploiariola, Reuter, Act. Soc. Fenn. xv. p. 711 (1888).

A widely distributed genus including a few Palæarctic species, and also represented in North America, the Hawaiian Islands, and Ceylon *. Buchanan White's genus *Ploiariodes* was based upon one of those forms with the pronotum tuberculate in the centre at the base, and the single Central-American representative belongs to that group.

1. **Ploiariodes armata,** n. sp. (Tab. X. figg. 9, 9 *a*; 9 *b*, anterior leg.)

Very slender, sparsely pubescent, opaque; ochraceous, mottled with fuscous, the body beneath and the abdomen, the connexivum excepted, blackish or fuscous; the pronotum with two ochraceous or whitish vittæ on the disc of the posterior lobe, the sinuous lateral carinæ white, the basal elevation fuscous or blackish; the elytra reticulated with white, the interspaces more or less fuscous, the apical third with some more or less distinct reddish-brown markings; the legs, rostrum, and antennæ whitish or whitish-ochraceous, closely speckled or annulated with nigro-fuscous, the anterior legs sometimes more broadly annulated than the others. Head with a deep transverse groove between the eyes, the latter large and prominent; antennæ very elongate, with joints 1 and 2 subequal in length, 2 nearly twice as long as 3 and 4 united, 4 about one-third the length of 3. Pronotum with a short, abrupt, subangular, cariniform elevation on the middle of the disc just before the posterior margin. Scutellum, post-scutellum, and base of the abdomen each with a long semi-erect spine. Anterior femora with a row of short fine teeth along their lower edge.
Length (to apex of the elytra) 5–6 millim.

Hab. GUATEMALA, Capetillo (*Champion*); PANAMA, Bugaba (*Champion*).

Three specimens, one of which has lost its head, this example having all the legs broadly annulated with fuscous. *P. armata* is allied to the Palæarctic *P. bærensprungi*, Dohrn, and *P. brevispina*, Puton, but it has much larger eyes, &c.

LUTEVOPSIS, n. gen.

Head about as long as the anterior lobe of the pronotum, parallel in front, convex and obliquely narrowing behind, without frontal spine, the eyes prominent; rostrum with the two basal joints subequal in length; antennæ with joints 1 and 2 exceedingly elongate. Pronotum elongate, divided into two parts of nearly equal length, the anterior lobe cylindrical, somewhat arched, and gradually widening forwards, the posterior lobe convex, broader, and covering the mesothorax. Meso- and metathorax short, subequal in length, together not longer than the pronotum. Scutellum unarmed. Elytra extending to near the apex of the abdomen. Abdomen elongate, narrow at the base, subovate. Anterior coxæ elongate, about as long as the tibiæ. Anterior trochanters unarmed. Anterior femora long and subcylindrical, slightly longer than the tibia and tarsus united, armed with a series of spines, which extend from the base to beyond the middle. Anterior tibiæ very finely denticulate within. Anterior tarsi short, a little longer

* The *P. oculata* of Mr. Kirby's list (Journ. Linn. Soc., Zool. xxiv. p. 123) is a Berytid, near *Metacanthus*.

than the hind tarsi, slender, with three distinct joints and two claws. Intermediate and hind legs slender and very elongate, the hind femora extending to beyond the abdomen. Body elongate, slender, winged.

The two species referred to this genus differ greatly *inter se* in the form of the head and anterior legs, but the general structure of the thorax, anterior tarsi, &c. is similar, and they can be included under one generic name for the present. *Lutevopsis* somewhat approaches *Luteva*, Dohrn; but in that genus the anterior tarsi are long, compressed, and claw-like, and not articulate, the pronotum is reduced to the portion corresponding to the anterior lobe of that of *Lutevopsis*, &c. The differently formed pronotum and the unarmed scutellum separate it from *Malacopus*, Stål. The series of spines on the anterior femora start from close to the base, instead of from near the middle, as in *Gardena*, *Emesa*, &c., and the first one is not longer than the others. The elytral neuration is very like that of *Emesa* (*longipes*, De G.).

Anterior legs very elongate, the femora with prominent spines; head considerably prolonged posteriorly, not swollen in the middle before the eyes; pronotum very elongate, the two lobes separated on the disc by a deep transverse groove, the anterior lobe dull; elytra without distinct markings. *longimanus*, n. sp.

Anterior legs much shorter, the femora with very short fine spines; head much less prolonged posteriorly, gibbous in the middle before the eyes; pronotum shorter, the two lobes not separated by a transverse groove, the anterior lobe smooth and shining; elytra with definite markings . . . *ornata*, n. sp.

1. **Lutevopsis longimanus,** n. sp. (Tab. X. figg. 10, 10 *a*, ♂.)

Elongate, slender, nigro-piceous, the head, the anterior lobe of the pronotum in great part, the basal joint of the antennæ, the rostrum, and legs ferruginous, the connexival sutures indicated by a small ochraceous spot; the elytra fusco-hyaline, with darker nervures; finely pubescent, the anterior femora and tibiæ ciliate within, the anterior tibiæ with some golden hair on the outer edge towards the base; the basal joint of the antennæ clothed all round with long, fine, projecting hairs; the head slightly shining, the pronotum opaque. Head very much longer than broad, considerably prolonged and narrowing behind the eyes, the eyes rather small. Pronotum very elongate, the two lobes divided on the disc by a deep transverse suture; the anterior lobe scabrous and considerably widened forwards, the posterior lobe transversely rugulose. Elytra reaching to the apex of the sixth abdominal segment. Abdomen with the sixth dorsal segment produced into a broad thin plate, which is curved upwards and covers the genital segments, its apex being narrowly truncate; terminal genital segment inflated beneath. Anterior legs very elongate, the femora with about five rather long spines and some shorter spines between them.

Length 9 millim. (♂.)

Hab. Mexico, Chilpancingo in Guerrero 4600 feet (*H. H. Smith*).

One specimen.

2. **Lutevopsis ornata,** n. sp. (Tab. X. figg. 11, 11 *a*, ♂.)

Very slender, elongate, shining; pale flavous, the eyes rufo-fuscous, the pronotum with a very fine fuscous line on each side in front and the scutellum also with a fuscous line on each side; the elytra with three equidistant groups of three or four dilute fuscous, oblong or rounded spots along the middle of their apical half; the wings iridescent; the pronotum, the basal joint of the antennæ, and the femora sparsely clothed with very long fine erect hairs, the other parts of the body and the anterior tibiæ finely

pubescent. Head with the eyes about as wide as the base of the pronotum, and as broad as long, smooth, convexly gibbous before the transverse groove, narrowed and globose behind, the eyes moderately large; antennæ very slender and exceedingly elongate, joints 1 and 2 subequal in length, 2 more than twice as long as 3 and 4 united, 4 twice as long as 3. Pronotum with the anterior lobe smooth and cylindrical, widening forwards, as long as the head, deeply sulcate along the middle at the base; the posterior lobe trapezoidal, wider and a little longer than the anterior lobe, densely punctulate, slightly depressed along the middle. Elytra reaching to the apex of the sixth abdominal segment. Abdomen widening from the base to about the middle, curved upwards at the apex, the genital segments exposed. Anterior legs comparatively short, the femora very minute denticulate and with four widely separated, very short, fine spines, extending from near the base to beyond the middle.

Length $7\frac{1}{2}$ millim. (♂.)

Hab. PANAMA, Bugaba (*Champion*).

One example. Easily distinguishable from all the allied forms by its pallid colour and the three clusters of dilute fuscous spots on the elytra. The four spines on the anterior femora are very short and fine, and not easily seen.

GARDENA.

Gardena, Dohrn, Linn. Ent. xiv. p. 214 (1860), and xv. p. 64; Stål, Enum. Hemipt. iv. pp. 93, 96.

The genus *Gardena* has not hitherto been recorded from America, though the commonest of the Central-American Emesids agrees well with Stål's definition of it (Enum. Hemipt. iv. p. 93). This insect is very like *Emesa longipes* (De Geer), but differs from it in several points of structure: the anterior tarsi are very short and distinctly 3-jointed; the series of long spines on the anterior femora, which extend from a little before the middle to near the apex, are subequal in length, the femora themselves being about twice the length of the tibiæ. The anterior tarsi are bi-unguiculate *.

1. **Gardena americana,** n. sp. (Tab. X. figg. 12, ♂; 12 *a*, anterior leg.)

Winged form. Very elongate, slender, reddish-brown or ferrugineo-testaceous, the meso- and metathorax, the thickened basal portion of the pronotum, and the base of the coxæ, piceous or black, the abdomen varying in colour from ferruginous to fuscous, the antennæ fuscous, the anterior knees usually piceous; the intermediate and posterior femora with a blackish annulus before the tip, the tip rather broadly white; the intermediate and posterior tibiæ narrowly biannulate with white at the base, the outer white ring sometimes followed by a dark one; the elytra fusco-hyaline, narrowly ochraceous at the base, the wings hyaline; the body almost glabrous, the anterior legs pubescent, the head and thorax smooth and shining. Head without frontal spine, the eyes prominent; antennæ with the two basal joints exceedingly elongate, subequal in length. Pronotum elongate, with the portion covering the mesothorax about one-third of the whole length, convex, and considerably dilated, the median portion very narrow and cylindrical, the anterior portion gradually widened forwards. Meso- and metathorax short, subequal in length, together shorter than the narrow portion of the pronotum. Elytra and wings extending to beyond the middle of the abdomen, about reaching the apex of the third segment. Abdomen very elongate. Anterior femora with a row of seven, rather long, fine spines of equal length, extending from a little before the middle to near the apex, and with some short spines between them. Anterior tibiæ one-half the length of the femora, minutely denticulate and closely ciliate along their inner edge. Anterior tarsi very short, slender, with three distinctly defined joints, and two narrowly separated claws of equal length.

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* The anterior tarsal claws are described as simple by Dohrn, and bi-unguiculate by Stål.

Apterous form. Pronotum not extending backwards over the mesothorax, and longer than the meso- and metathorax united.

♂. Antennæ with joint 1 and the basal half of 2 clothed all round with very fine, rather long, projecting hairs. Abdomen narrow, with two exposed genital segments; the terminal genital segment long, very convex beneath, acutely produced and curved upwards on each side above.

♀. Antennæ glabrous. Abdomen broader, the genital segments shorter and declivous.

Length 15–22 millim.

Hab. Mexico, Chilpancingo and Dos Arroyos in Guerrero, Atoyac in Vera Cruz, Teapa in Tabasco (*H. H. Smith*); Guatemala, Mirandilla, Tamahu (*Champion*); Panama, Volcan de Chiriqui, Caldera, Bugaba (*Champion*).—Colombia (*Mus. Brit.*).

Of the forty specimens examined, three only are apterous.

EMESA.

Emesa, Fabricius, Syst. Rhyng. p. 263 (1803) (excl. larva); Amyot et Serville, Hist. Nat. des Ins. Hémipt. p. 393; Dohrn, Linn. Ent. xiv. p. 215 (part.); Stål, Enum. Hemipt. ii. pp. 125, 126, and iv. p. 93.

I follow Stål in restricting this genus to *E. longipes* and its allies, these species having the anterior tarsi long, compressed, and claw-like, non-articulate, and biunguiculate. They are winged, and have the very long neck-like portion of the thorax formed entirely by the pronotum, this latter being extended backwards over the mesothorax in fully-developed specimens. The armature of the anterior femora is similar to that of *Ghilianella*. The head is without frontal spine.

1. **Emesa longipes.** (Tab. X. figg. 13, anterior leg; 14, head and thorax of nymph.)

Cimex longipes, De Geer, Mém. Ins. iii. p. 352, t. 35. figg. 16, 17 (1773) [1].

Emesa longipes (? Fabr.), Dohrn, Linn. Ent. xiv. p. 221, t. 1. fig. 2 [2]; Uhler, Proc. Bost. Soc. Nat. Hist. xiv. p. 107 [3]; Stål, Enum. Hemipt. ii. p. 126 [4]; Glover, Illustr. Ins., Hemipt. p. 87, t. 4. fig. 25 (1876) [5].

Ploiaria brevipennis, Say, Amer. Ent. iii. t. 47 (1828) [6]; Complete Writings, i. p. 106, t. 47 [7] (nec Dohrn).

Emesa filum (? Fabr.), Gray, in Griffith's Anim. Kingd. xv. p. 244, t. 97. fig. 3 [8].

Emesa pia, Amyot et Serv. Hist. Nat. Ins. Hémipt. p. 394 [9]; Herr.-Schäff. Wanz. Ins. ix. p. 114, t. 303, fig. 937 * (♀) [10].

Emesa affinis, Dohrn, Linn. Ent. xiv. p. 222 † [11].

Hab. North America [5 8 9 10], United States [3], Pennsylvania [1 2 4 6 7], Texas [4].—Mexico, Ventanas in Durango (*Forrer*), Tepetlapa in Guerrero, Vera Cruz (*H. H. Smith*), Atoyac in Vera Cruz (*Schumann*, *H. H. Smith*); Guatemala, San Gerónimo, Chacoj, and Tamahu in Vera Paz, Cerro Zunil (*Champion*); Panama, Veraguas (*Mus. Berol.*[11]), Taboga I. (*Champion*).—Colombia to the Amazons Valley.

* The structural details are wrongly named on the Plate.

† The type of *E. affinis*, Dohrn (in the Berlin Museum), a drawing of which is before me, is labelled "Veragua": Dohrn merely gave "Colombia" as the locality. It is without front legs.

This widely-distributed species is not uncommon in Central America, occurring on both the Atlantic and Pacific slopes. The basal third of the abdomen is sometimes bright red, the head often has two fulvous vittæ behind the transverse groove, and the annulation of the legs is not always distinct, the intermediate and hind pairs, however, have the knees constantly whitish. The nymph is so different from the fully developed form that a description of it is given below, chiefly taken from a broken example from Atoyac (where the winged form was also obtained), supplemented by a less mature North-American specimen in the British Museum; this latter has the intermediate and hind knees white, as in the developed form.

Nymph. Exceedingly slender and elongate, almost glabrous, smooth, somewhat shining; the head ochraceous, with two narrowly separated vittæ on the anterior portion and the sides before and behind the eyes fuscous; the pro-, meso-, and metanotum and the abdomen ochraceous, with the sides broadly fuscous, the mesonotum with two fuscous vittæ; the wing-pads ochraceous externally, fuscous within; the anterior legs ochraceous beneath, fuscous above, the tarsi and the outer half of the tibiæ broadly annulated with pale ochraceous; the intermediate and hind legs brownish, with the knees blackish, the femora towards the tip and the tibiæ near the base biannulated with pale ochraceous; the antennæ brownish, with the tip of the basal joint ochraceous. Head without frontal spine, the eyes prominent. Prothorax exceedingly elongate, as long as the meso- and metathorax united, the metathorax longer than the mesothorax; the pronotum narrow and cylindrical behind, widening forwards, and swollen at the base, obsoletely canaliculate; the pleural margins very minutely denticulate. Wing-pads extending to a little beyond the base of the metanotum. Abdomen very elongate, linear.

Length 30 millim.

GHILIANELLA.

Ghilianella, Spinola, Mem. Soc. Ital. Sci. xxv. p. 142 (1852); Dohrn, Linn. Ent. xiv. pp. 213, 236 (part.); Stål, Enum. Hemipt. ii. pp. 125, 126.

Stål distinguishes this genus from *Emesa* by the uni-unguiculate anterior tarsal claws, the tarsi themselves being long, compressed, and claw-like, and non-articulate in both genera; he also uses the granulation of the head and thorax as a distinguishing character, but this cannot be depended upon. It may be noted that the mesothorax in *Ghilianella* is prolonged into a long neck in front and abruptly separated from the prothorax, whereas in *Emesa* the long neck is formed entirely by a backward prolongation of the pronotum. The species of *Ghilianella*, moreover, are constantly apterous, without even the rudiments of wing-pads; some of them have the abdomen abruptly inflated at or before the apex, the form of dilatation being very dissimilar in the two sexes, a fact not even suspected by Dohrn. The anterior tibiæ are comparatively short. The anterior femora are armed before the middle with one very long spine, between which and the apex is a series of much shorter spines, alternating with still shorter spines or teeth. The head has a well-developed frontal spine. One of the South-American species of *Ghilianella* (*G. filiventris*, Spin.) was described by Fabricius as the larva of an *Emesa* (*E. precatoria*, Fabr.).

The Central-American species may be separated thus:—

a. Mesothorax much longer than the prothorax; head and thorax distinctly granulate.

a'. Eyes prominent, the head much narrowed behind.

a''. Abdomen moderately slender: the fourth segment abruptly inflated, and the sixth strongly acuminate and usually more or less carinate (♂); the inflated apical portion piriform and the fourth dorsal segment angularly dilated on each side (♀) . . . . . *ignorata*, Dohrn.

b''. Abdomen more slender: the third and fourth segments abruptly and conjointly inflated and the sixth moderately acuminate (♂); the inflated apical portion ovate and the fifth dorsal segment tuberculate in the middle behind (♀) . . . . . *bulbifera*, n. sp.

b'. Eyes not prominent, the head less narrowed behind; head and thorax strongly granulate; abdomen linear (mutilated) . . . . . *granulata*, n. sp.

b. Mesothorax not or scarcely longer than the prothorax; eyes prominent; head and thorax obsoletely granulate.

c'. Abdomen comparatively short, with the fourth segment inflated (♂), or widened to the apex of the fifth segment, which is tuberculate and has the apical angles prominent (♀); frontal spine short, obtuse, and porrect . . . . . *gibbiventris*, n. sp.

d'. Abdomen gradually widened (♂ ♀), the dorsal segments more or less toothed at their apical angles; frontal spine long, acute, and curved downwards . . . . . *angulata*, Uhler.

1. **Ghilianella ignorata.** (Tab. X. figg. 15, 15 *a*, ♂, 16 ♀, part of the abdomen.)

♂. *Ghilianella ignorata*, Dohrn, Linn. Ent. xiv. p. 238, t. 1. figg. 9, 11[1]; Stål, Enum. Hemipt. ii. p. 126[2]; Walk. Cat. Hemipt. Heteropt. vii. p. 147[3].

♂. Abdomen with the fourth segment abruptly and arcuately inflated at the sides, transversely gibbous beneath and transversely convex above, the fourth dorsal segment more or less angularly dilated laterally; the fifth dorsal segment subparallel; the sixth dorsal segment long and strongly acuminate, extending beyond the apex of the convex terminal genital segment, curving upwards posteriorly, and usually longitudinally carinate in the middle at the apex.

♀. Abdomen with the apex of the third segment, the fourth segment, and the base of the fifth conjointly and arcuately inflated at the sides, convex beneath, the fourth dorsal segment angularly dilated laterally before the apex; the fifth dorsal segment widening forwards; the sixth dorsal segment subquadrate; the first genital segment short, declivous, the second segment subvertical.

Hab. Mexico, Teapa in Tabasco (*H. H. Smith*); British Honduras, R. Hondo (*Blancaneaux*); Guatemala, Panzos, Teleman, Chacoj, Panima, and San Gerónimo in Vera Paz (*Champion*); Panama, Chiriqui (*Mus. Holm.*).—Colombia[3]; Venezuela[1 2]; Brazil[1 2].

Of this species we possess fourteen females and four males, all of which are from the Atlantic slope. Specimens of both sexes were obtained at Panima and Teleman. In the darkest examples the legs are unicolorous, but in the paler ones they are conspicuously annulated with ochraceous. The eyes and the abdominal spiracles are

prominent. The inflated apical portion of the abdomen is somewhat piriform in shape in the female.

2. **Ghilianella bulbifera,** n. sp. (Tab. X. figg. 17, 17 *a*, ♂; 18, part of the abdomen, ♀.)

Slender, opaque, piceous or obscure ferruginous, the abdomen more or less mottled with black in the female, the inflated portion and the apex of the sixth segment usually black in the male, the legs annulated with ochraceous; finely pubescent, the head and thorax sparsely granulate. Head with a curved yellowish frontal spine, the eyes prominent; antennæ with joint 2 very little shorter than 1. Pro- and metathorax subequal in length, the mesothorax more elongate, the meso- and metathorax abruptly widened posteriorly.

♂. Abdomen with the first and second segments long and narrow; the fourth segment and the apical half of the third abruptly, conjointly, and arcuately inflated at the sides, gibbous above and beneath, the third dorsal segment feebly subangularly dilated on each side at the apex; the fifth dorsal segment subparallel; the sixth dorsal segment long and moderately acuminate, not quite covering the apex of the terminal genital segment, strongly curved upwards posteriorly, without median carina; the long terminal genital segment greatly inflated beneath.

♀. Abdomen gradually inflated from a little below the base of the third segment to about the apex of the fifth and then narrowed to the apex, the inflated portion oval in shape; the fifth dorsal segment angularly dilated at the apical angles, and with a prominent tubercle in the centre a little before the apex; the sixth dorsal segment widening forwards and truncate behind; the two genital segments abruptly declivous.

Length 20–22 millim.

Hab. Panama, Bugaba (*Champion*).

Found in numbers at Bugaba, males preponderating. Very like *G. ignorata*, Dohrn, but differing from it structurally in both sexes: the males have a more slender abdomen, the apex of which is still more curved upwards, and the sixth dorsal segment is much less acuminate (not covering the tip of the inflated terminal genital ventral segment) and not carinate; the females have the inflated apical portion of the abdomen oval in shape (instead of piriform), the fifth dorsal segment with a conspicuous tubercle in the middle behind.

3. **Ghilianella granulata,** n. sp. (Tab. X. fig. 19, head, thorax, and anterior leg.)

Slender, opaque, almost glabrous, ochraceous, the head and thorax indeterminately fuscous at the sides, the anterior legs and the intermediate and hind femora faintly annulated with fuscous, the intermediate and hind tarsi fuscous; the head and thorax sparsely and conspicuously granulate. Head with a porrect, acute frontal spine, the posterior half gradually narrowed behind and very finely canaliculate down the middle, the groove continued down the anterior part of the pronotum, the eyes small and not prominent; antennæ with joint 2 much shorter than 1. Pro- and metathorax subequal in length, the mesothorax much more elongate; the mesothorax considerably, the metathorax slightly, widened behind. Abdomen with segments 1–4 filiform (the rest broken off).

Length (to apex of fourth abdominal segment 19) ? about 25 millim.

Hab. British Honduras, R. Hondo (*Blancaneaux*).

One example. This species being abundantly distinct from the other Central-American forms, I have ventured to name it, the mutilated condition of the abdomen notwithstanding. The small, non-prominent eyes, the finely canaliculate basal portion

of the head, the conspicuous granulation of the head and thorax, the almost glabrous body, and the pallid coloration separate it at once from *G. ignorata* and *G. bulbifera*, to which it is evidently allied. The head also is less narrowed behind than in these species. In the British Museum there are specimens of a very similar form, with a linear abdomen, from Jamaica and Santarem; but they are less slender than the present species and have more prominent eyes.

4. **Ghilianella gibbiventris,** n. sp. (Tab. X. fig. 20, ♂.)

Comparatively robust, nigro-piceous or piceous, the legs annulated with ochraceous (the middle and hind pairs in the female example ochraceous and faintly annulated with fuscous); finely pubescent, the head and thorax obsoletely granulate. Head with a short, obtuse, porrect frontal spine, the eyes very prominent; antennæ with joint 2 very little shorter than 1. Pro- and mesothorax subequal in length, the metathorax much shorter, the meso- and metathorax much widened posteriorly.

♂. Abdomen with the third segment widening from the base, the fourth segment arcuately inflated at the sides and gibbous above, and the fifth widening forwards; the sixth dorsal segment long and moderately acuminate, strongly curved upwards posteriorly; the long terminal genital segment greatly inflated beneath and partly visible from above.

♀. Abdomen (apparently) widened from the base to the apex of the fifth segment, the sixth segment subquadrate, the fifth with a conspicuous tubercle in the centre behind and the apical angles prominent; the genital segments abruptly declivous.

Length, ♂ 17, ♀ about 23 millim.

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

One male and one female, probably belonging to the same species, the structure of the head and thorax being quite similar in both of them *. The female, which has the intermediate and hind legs much paler and the abdomen very much crushed, closely resembles the same sex of *G. angulata*, recorded by Prof. Uhler from Panama; but it has a short, obtuse, porrect frontal spine (instead of an acute curved one), a longer mesothorax, &c.

5. **Ghilianella angulata.**

Emesa angulata, Uhler, P. Z. S. 1893, p. 717 [1]; 1894, p. 212 [2].

Hab. PANAMA, near the city [1].—ANTILLES, Grenada [2], St. Vincent [1].

I have not seen a specimen of this species from within our limits, and it is probable that the Panama specimens mentioned by Prof. Uhler are like the female here referred to *G. gibbiventris*. The larva of *G. angulata* has the head and thorax strongly granulated.

LUTEVA.

Luteva, Dohrn, Linn. Ent. xiv. pp. 213, 242 (1860); Stål, Enum. Hemipt. ii. p. 126, and iv. pp. 93, 95.

Three species were referred to this genus by Dohrn, two of which were from Tropical

* Since these pages have been in type, I have seen a male of a closely allied species from Panama (belonging to the Vienna Museum); it is very like *G. gibbiventris*, but has a curved frontal spine and the head and thorax conspicuously granulate.

America; one of these has been recorded by Stål from Mexico. In *Luteva* the anterior tarsi are long and claw-like and not articulated, the anterior femora are armed from the base with a row of closely placed slender spines, the anterior trochanters are armed with one or two slender spines or setæ, the pronotum is completely separated from the mesonotum, the latter covering the mesothorax and extending forwards, and the elytra reach the apex of the abdomen.

1. **Luteva macrophthalma.** (Tab. X. figg. 24, elytron; 24 *a*, profile.)

Luteva macrophthalma, Dohrn, Linn. Ent. xiv. p. 244, t. 1. figg. 23, 24 [1]; Stål, Enum. Hemipt. ii. p. 127 [2].

Hab. Mexico, Vera Cruz (*Sallé* [2]).—Colombia [1]; Brazil [1].

PLOIARIOPSIS, n. gen.

Head short, broad, subcylindrical in front, transversely convex behind, without frontal spine, the eyes large and prominent; rostrum 3-jointed, the two basal joints short; antennæ exceedingly slender, longer than the body, the two basal joints very elongate. Prothorax short, subquadrate or narrowing behind, the basal margin raised and dilated, forming a collar for the reception of the mesothorax. Mesothorax extending forwards, twice as long as the metathorax, covered by the mesonotum, which is subconical and longer than the pronotum. Scutellum without spine. Elytra extending to far beyond the abdomen, the spaces between the main nervures closely reticulate. Abdomen narrow. Anterior coxæ elongate, longer than the tibiæ. Anterior trochanters armed with one or two long spines. Anterior femora as long as the tibia and tarsus united, slightly curved at the base, armed on the lower side with two rows of long spines, which extend from the base to near the apex, the spines on one or both edges arising from a series of conical teeth. Anterior tibiæ comparatively short. Anterior tarsi a little shorter than the tibiæ, slender, formed by three connate joints, and with a single claw. Intermediate and hind legs very elongate, the hind femora extending to far beyond the apex of the elytra. Body elongate, very slender, winged.

Two small species are referred to this genus. These insects have the facies of *Ploiariodes*, but with the general structure more nearly agreeing with that of *Luteva*, from which they differ in the closely reticulated elytra and the peculiar armature of the anterior femora. The pronotum is short, the mesothorax being entirely covered by the mesonotum. The anterior tibiæ in repose are received between the two rows of long spines which extend along the lower edges of the femora, these spines arising (on one or both edges) from prominent conical teeth. The antennæ have their two basal joints clothed with very long projecting hairs.

The two species may be differentiated thus:—

Head distinctly bituberculate between the eyes, with a short erect spine on the basal declivity, the eyes very large; mesonotum deeply sulcate; anterior femoral spines much shorter than the tarsi; intermediate and hind femora conspicuously annulate towards the apex . . . . . *megalops*, n. sp.

Head not distinctly bituberculate between the eyes, with an interrupted carina behind, the eyes smaller; mesonotum shallowly sulcate; anterior femoral spines nearly as long as the tarsi; intermediate and hind femora speckled with fuscous . . . . . *prædator*, n. sp.

1. **Ploiariopsis megalops,** Tab. X. figg. 21, 21 *a*.)

Very sparsely pubescent, opaque; the head and the pro- and mesonotum ochraceous, slightly mottled with fuscous, the mesonotum with two fuscous lines on the middle of the disc; the elytra ochraceous, reticulated with fuscous, and with a narrow oblique fuscous fascia near the apex; the abdomen and under surface nigro-piceous; the antennæ ochraceous, with the first and second joints fuscous at the apex; the rostrum and anterior legs ochraceous, annulated with fuscous; the intermediate and hind legs ochraceous, the femora with two whitish and two fuscous rings towards the apex, the tibiæ with two whitish rings at the base; the coxæ and trochanters fuscous. Head with the eyes wider than the base of the mesonotum, with two prominent tubercles before the transverse inter-ocular groove and one behind it, and a short erect spine in the centre of the basal declivity, the eyes very large; antennæ with joints 1 and 2 exceedingly elongate, 2 slightly shorter than 1, each fringed all round with long, fine, projecting hairs, 3 and 4 short and subequal in length. Pronotum oblong-subquadrate, the basal margin moderately raised. Mesonotum longer than the pronotum, subconical, distinctly margined at the sides, the disc deeply sulcate down the middle and also finely canaliculate, the basal margin quadrituberculate. Scutellum with a small pallid tubercle. Anterior femora with a row of five long spines on the outer edge beneath, arising from conical teeth, and some short spines between them, and also with a row of short spines along the inner edge, amongst which are about four longer ones intermixed.

Length (to apex of the elytra) 5 millim. (? ♂.)

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

One example, in perfectly preserved condition. The anterior femora are armed with moderately long spines, these alternating, on the outer edge, with two short spines.

2. **Ploiariopsis prædator,** n. sp. (Tab. X. figg. 22, 22 *a*.)

Very sparsely pubescent, opaque, nigro-piceous, the head and the disc of the pro- and mesonotum ochraceous; the elytra pale ochraceous, reticulated with fuscous; the antennæ brownish-ochraceous, with the first joint whitish at the base; the legs brownish-ochraceous, all the femora speckled with fuscous to the base, the intermediate and hind pairs blackish at the apex. Head with the eyes as wide as the base of the mesonotum, grooved down the middle before the transverse groove and with an interrupted median carina behind it, the eyes moderately large; antennæ with joints 1 and 2 each fringed all round with long, fine, projecting hairs (3 and 4 injured). Pronotum narrowed behind, the basal margin greatly raised and forming a very prominent collar. Mesonotum much longer than the pronotum, subconical, shallowly sulcate down the middle and obsoletely margined at the sides. Scutellum with a pallid tubercle. Anterior femora with two rows of five or six very long spines, alternating with shorter spines, the longer ones arising from conical teeth, which are longer on the outer than on the inner edge.

Length (to apex of the elytra) $5\frac{3}{4}$ millim. (? ♂.)

Hab. GUATEMALA, Capetillo (*Champion*).

One example. In this species the long spines on the anterior femora are, with the conical tubercles from which they arise, nearly as long as the tarsi, and between them there is an alternating series of single shorter spines.

PLOIARIA.

Ploiaria, Scopoli, Del. Flor. et Faun. Insubr. i. p. 60 (1786); Reuter, Act. Soc. Fenn. xv. p. 713.
Cerascopus, Heineken, Zool. Journ. v. p. 36 (1830); Stål, Enum. Hemipt. ii. p. 127, and iv. pp. 93, 95.
Emesodema, Spinola, Essai Hémipt. p. 87 (1837); Dohrn, Linn. Ent. xiv. pp. 213, 246.

Of this genus we possess a mutilated specimen of a species evidently different from

the described American forms ; it is mentioned here solely to record the presence of *Ploiaria* in Mexico.

1. **Ploiaria,** sp. (Tab. X. fig. 23, anterior leg.)

Hab. Mexico, Paso del Macho (*Höge*).

One male specimen, about 6 millim. long, not unlike the Palæarctic *P. domestica*, Scop., but with a less dilated abdomen and longer spines on the anterior femora.

Subfam. *BACTRODINÆ.*

This subfamily of Reduviidæ includes a single genus, peculiar to the warmer parts of America, and ranging from Central Mexico to the Argentine Republic. It differs from the Emesinæ in having the anterior coxæ less elongate and the lower portion of the prothorax produced in front, as well as in the presence of ocelli.

BACTRODES.

Bactrodes, Stål, Rio Jan. Hemipt. p. 80 (1858) ; Enum. Hemipt. ii. p. 124.

Of the four described species of *Bactrodes*, two occur within our limits. In both of them the anterior trochanters are armed with a sharp spine, and the anterior femora are furnished with six or seven spines along their lower edge. The anterior tarsi have two claws, the intermediate and hind tarsi one only.

Head and posterior lobe of the pronotum not spinose, the anterior lobe of the latter feebly spinose at the sides towards the apex ; scutellum with a short spine; anterior femora biannulate and almost smooth above; abdomen not foliaceous at the sides posteriorly . . . . . *biannulatus,* St.

Head and both lobes of the pronotum spinose, the spines bearing erect hairs, the head with two long divergent spines in front and the pronotum with a long spine at each of the hind angles ; scutellum and post-scutellum each with a long semierect spine; anterior femora coarsely granulate; abdomen with the fifth connexival segment strongly, and the sixth feebly, foliaceous . . *spinulosus,* St.

1. **Bactrodes biannulatus.** (Tab. XI. fig. 1, ♂.)

Bactrodes biannulatus, Stål, Rio Jan. Hemipt. p. 80 [1] ; Enum. Hemipt. ii. p. 125 [2].

Hab. Mexico, Chilpancingo in Guerrero 4600 feet (*H. H. Smith*); Panama, Tolé, San Miguel in the Pearl Is. (*Champion*).—Brazil [1 2].

We possess three specimens of this species, all males. The Mexican example is figured.

2. **Bactrodes spinulosus.** (Tab. XI. figg. 2, 2 *a*.)

Bactrodes spinulosus, Stål, Stett. ent. Zeit. 1862, p. 442 (♀) [1]; Enum. Hemipt. ii. p. 125 [2].

Hab. Mexico [1 2] (*Sallé*), Omilteme in Guerrero 8000 feet (*H. H. Smith*), Cuernavaca, Pedregal (*Bilimek, in Mus. Vind. Cæs.*); Guatemala, San Gerónimo and Capetillo (*Champion*), Aceituno (*Salvin*).

Eighteen specimens have been seen of this insect (including the type), the four from Omilteme having the body, elytra, and anterior femora much suffused with fuscous.

Subfam. *SAICINÆ.*

This subfamily of Reduviidæ agrees with the Emesinæ in the absence of ocelli, but differs from it in the much less elongate anterior coxæ. The three known Tropical-American genera are all represented within our limits.

SAICA.

Saica, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 371 (1843); Stål, Hemipt. Fabr. i. p. 129, nota; Enum. Hemipt. ii. p. 124, and iv. p. 91.

This genus includes three known Tropical-American species *, all of which occur within our limits, whence two others are now added. *Saica* is easily recognizable by the curved and unarmed anterior tibiæ, the long pronotal and scutellar spines, the long intermediate and hind legs, and the setose (not spinose) anterior femora. These latter have a row of setæ along their lower face—in some species regularly arranged, and in others broken up into clusters or fascicles,—and a second row of closely placed setæ along their anterior edge. From the lower setæ, as well as from those on the trochanters, a viscid substance is extruded by the insect (the setæ being more or less stuck together in all the specimens examined), no doubt to assist it in capturing its prey.

a. Femora not annulate at the apex; form moderately slender.
  a'. Legs, antennæ, and elytra nigro-fuscous, the base of the femora and the costa of the elytra vermilion-red; femoral setæ regularly arranged . *fuscipes,* St.
  b'. Legs and antennæ fuscous or nigro-fuscous, the elytra ochraceous; femoral setæ regularly arranged . . . . . *recurvata,* F.
  c'. Legs and antennæ rufous, the elytra fusco-ochraceous; femoral setæ fascicularly arranged . . . . . *rubripes,* n. sp.
  d'. Femora and the base of the tibiæ vermilion-red, the rest of the legs and the antennæ flavescent or brownish, the elytra ochraceous; femoral setæ irregularly arranged . . . . . *tibialis,* St.
b. Femora annulate at the apex; form very slender . . . . . *erubescens,* n. sp.

* *S. annulipes*, Uhler, belongs to *Tagalis*, Stål.

1. Saica fuscipes.

Saica fuscipes, Stål, Stett. ent. Zeit. 1862, p. 441 (♀)[1]; Enum. Hemipt. ii. p. 124[2].

Hab. MEXICO[1 2]; GUATEMALA, Cubilguitz in Vera Paz (*Champion*).

Of this species we possess a single female example, the type, which I have seen, being of the same sex; the latter was probably obtained in Vera Cruz. *S. fuscipes* is of a brilliant vermilion-red colour, with the tibiæ and femora, the base of the latter excepted, the antennæ, and elytra, the costal margin excepted, fuscous or nigro-fuscous, and the tarsi fusco-testaceous. The pronotal spines are very long and acute. The legs are relatively very elongate. The anterior femora are furnished on the lower side with a row of closely placed setæ, in addition to the long fine hairs, and there are two clusters of setæ on the anterior trochanters beneath.

2. Saica recurvata.

Zelus recurvatus, Fabr. Syst. Rhyng. p. 286 (1803)[1].

Saica recurvata, Stål, Hemipt. Fabr. i. p. 129[2]; Enum. Hemipt. ii. p. 124[3]; Uhler, P. Z. S. 1893, p. 706[4], and 1894, p. 210[5].

Saica rubella, Amyot et Serv. Hist. Nat. Ins. Hémipt. p. 372 (1843)[6]; Stål, Enum. Hemipt. ii. p. 124[7].

Hab. MEXICO, Oaxaca (*Mus. Brit.*); GUATEMALA, Las Mercedes, Mirandilla (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui, Caldera, David, Tolé (*Champion*).—SOUTH AMERICA[1 2], Colombia[3], Guiana[3 6 7]; ANTILLES, St. Vincent[4], Grenada[5].

This insect is very like *S. fuscipes*, but differs from it in having the femora entirely fuscous or nigro-fuscous, and the elytra ochraceous or brownish-ochraceous, the costal margin included. The pronotal and scutellar spines are long, and they are usually nigro-fuscous or tipped with that colour. The anterior femora are furnished beneath with a row of closely placed setæ, in addition to the long fine hairs. The anterior trochanters have two clusters of setæ beneath. St. Vincent and Grenada specimens differ from those from the mainland in having much shorter pronotal and scutellar spines.

3. Saica rubripes, n. sp. (Tab. XI. figg. 3, ♂; 3 *a*, anterior leg.)

Elongate, moderately slender; dilute vermilion-red (fading to sanguineo-testaceous in dried specimens), the coxæ, femora, tibiæ, and antennæ rufous or fusco-rufous, the tarsi fusco-testaceous, the pronotal and scutellar spines flavescent, sometimes fuscous at the extreme tip, the elytra fusco-ochraceous; the legs, body, and antennæ thickly clothed with long fine hairs, the anterior femora also furnished beneath with an irregular row of fascicularly arranged setæ; the anterior trochanters with two clusters of setæ beneath. Eyes moderately large. Pronotal and scutellar spines moderately long and acute. Post-scutellum tuberculate in front and with a short acute spine behind. Intermediate and hind legs very elongate. Prosternal spines acute and visible from above.

Length 14–15, breadth $2\frac{1}{10}$–$2\frac{1}{4}$ millim. (♂ ♀.)

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).—COLOMBIA (*Mus. Brit., ex Goudot*).

Seven specimens. Very like *S. recurvata*, but evidently distinct, differing from it in the rufous coloration of the legs and antennæ, and the fascicular arrangement of the setæ on the lower side of the anterior femora. There is an immature example of the same species from Colombia in the British Museum.

4. **Saica tibialis.** (Tab. XI. figg. 4, 4 *a*, ♀.)

Saica tibialis, Stål, Stett. ent. Zeit. 1862, p. 441[1]; Enum. Hemipt. ii. p. 124[2].

Hab. Mexico [1] [2], Jalapa (*M. Trujillo*); Guatemala, San Gerónimo in Vera Paz, Cerro Zunil, Las Mercedes, Mirandilla (*Champion*); Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Not uncommon in Guatemala and Panama, occurring on both the Atlantic and Pacific slopes. This species is very like *S. recurvata* (Fabr.), but it is smaller and less elongate, and the pronotal spines are longer and usually whitish. In light-coloured specimens the tibiæ, except at the base, and the tarsi are yellowish-white, like the trochanters and coxæ, and the other parts of the legs vermilion-red; but in darker examples the tibiæ are fusco-testaceous or fuscous, or have the basal half rufous. The elytra are more or less ochraceous, with some of the nervures red. The anterior femora are furnished beneath with an irregular row of setæ, in addition to the long fine hairs. The anterior trochanters have two clusters of setæ beneath. The prosternal spines are acute.

Twenty-eight specimens have been seen, one only of which is from Mexico, and that very much discoloured.

5. **Saica erubescens,** n. sp. (Tab. XI. figg. 5, 5 *a*, ♂.)

Elongate, very narrow, slender; dilute whitish-stramineous, the femora with a rather broad annulus at the tip, the hind pair also with a faint annulus a little beyond the middle, the hind angles of the pronotum, and the elytra with the costa in part and some of the nervures towards the base, rosy-red; the body, legs, and antennæ thickly clothed with very long, fine, erect, whitish hairs, the anterior femora also furnished beneath with an irregular row of scattered setæ. Head swollen behind the eyes, the latter large and prominent. Pronotal spines acute and exceedingly elongate, projecting a little forwards and outwards, as long as the backwardly-directed scutellar spine; post-scutellum with two spines—the anterior one short and blunt, the posterior one acute and about one-third the length of the scutellar spine. Legs very slender. Prosternal spines acute and visible from above.

Length (to tip of the elytra) $8\frac{1}{2}$, breadth $1\frac{1}{10}$ millim. (♂.)

Hab. Panama, Bugaba (*Champion*).

One specimen. Allied to *S. tibialis*, Stål; but much smaller and narrower than the male of that insect, and with more slender limbs. The legs are whitish, with a dilute rosy-red annulus at the apex of each of the femora, the posterior pair also having a faint median ring.

TAGALIS.

Tagalis, Stål, Rio Jan. Hemipt. p. 76 (1858); Hemipt. Fabr. i. p. 130, nota; Enum. Hemipt. ii. p. 124, and iv. p. 91.

Stål included in this genus a single Tropical-American species, which is now known to extend as far north as the Mexican State of Tabasco; a second very distinct form from Panama is here added. The genus is easily recognizable by the three long spines on the anterior tibiæ, the anterior femora also having a double row of spines. These spines, like those on the underside of the head, arise from conical prominences. Most of the specimens obtained by myself were beaten from the pendent withered leaves of various musaceous plants.

1. **Tagalis inornata.** (Tab. XI. figg. 6, ♂; 6 *a*, anterior leg.)

Tagalis inornata, Stål, Rio Jan. Hemipt. p. 76 (♀) (1858)[1]; Enum. Hemipt. ii. p. 124[2].
Saica annulipes, Uhler, P. Z. S. 1894, p. 210 (♀)[3].

Hab. Mexico, Teapa in Tabasco (*H. H. Smith*); Guatemala, Senahu in Vera Paz, Las Mercedes, Pantaleon (*Champion*); Panama, Bugaba, Volcan de Chiriqui (*Champion*). —Brazil, Rio Janeiro[1 2]; Antilles, Grenada[3].

Found in numbers at Senahu and Las Mercedes. This insect is usually testaceous, but the head, thorax (the disc of the anterior lobe of the pronotum excepted), and scutellum are in a few examples more or less piceous or black. The connexivum in fresh specimens is stained with carmine-red. The basal joint of the antennæ is blackish at the tip, and in the males clothed with very long fine projecting hairs. The anterior femora are armed beneath with a row of very short spines, with about five longer spines intermixed, and they also have a row of long spines in front. The anterior tibiæ have three long curved spines on their basal half externally. The anterior trochanters and coxæ, the underside of the head, and the front of the prosternum are also armed with spines. The femora usually have a narrow fuscous or blackish annulus before the tip, but this is not always distinct. The scutellum and post-scutellum are each armed with a long erect spine, and there is a very short spine just in front of the post-scutellar one. Twenty-seven specimens have been received.

2. **Tagalis seminigra,** n. sp. (Tab. XI. fig. 7, ♀.)

Elongate, slender, shining, very sparsely pubescent; black or piceous, the basal portion of the head and the disc of the anterior lobe of the pronotum sometimes reddish; the abdomen ochraceous, with the base beneath and the middle of the dorsum blackish, and the connexivum carmine-red; antennæ with joint 1 broadly black at the base and more narrowly so at the apex, and for the rest flavous, the other three joints brownish; legs with the femora and the base of the tibiæ black and for the rest flavous; anterior coxæ and trochanters piceous, the intermediate and hind pairs flavous; elytra with the nervures and their immediate vicinity fuscous, for the rest pale ochraceous; the femora with a few very fine, long, projecting hairs. Head with two spines on each side beneath, and the prosternum with a still longer spine on each side in front; eyes large; antennæ as long as the body, joint 1 about as long as 2 and 3 united, clothed

with very long fine projecting hairs in the male, 2–4 decreasing in length. Pronotum almost smooth, with the posterior lobe broadly and deeply sulcate down the middle anteriorly. Scutellum and post-scutellum each armed with a very long erect spine, the post-scutellar one preceded by a short spiniform prominence. Intermediate and hind legs very long and slender. Anterior femora armed beneath with a row of very short spines, with five longer spines intermixed, and with a row of six or seven spines in front, these latter becoming longer towards the apex of the femur. Anterior tibiæ with three long, curved spines on their basal half externally.

Length 5–6, breadth $\frac{7}{8}$–1 millim. (♂ ♀.)

Hab. PANAMA, Bugaba (*Champion*).

One male and three females. More slender than *T. inornata*, with the femora and the base of the tibiæ black, and the antennæ also black at the base, the posterior lobe of the pronotum more deeply sulcate.

ONCEROTRACHELUS.

Oncerotrachelus, Stål, Hemipt. Fabr. i. p. 130, nota (1868); Enum. Hemipt. ii. p. 124, and iv. p. 91

The chief characters of this genus are the strongly acuminate scutellum, the transversely globose basal portion of the head, the peculiar neuration of the elytra, and the unarmed anterior femora. Two species only are known, one of these (*O. conformis*, Uhler, from the island of Grenada) having an erect tooth at the hind angles of the pronotum.

1. **Oncerotrachelus acuminatus.** (Tab. X. figg. 8, 8 *a*, ♀.)

Reduvius acuminatus, Say, Descr. of New Sp. of Heteropt. Hemipt. (New Harmony, 1831)[1]; Complete Writings, i. p. 356[2].

Oncerotrachelus acuminatus, Stål, Enum. Hemipt. ii. p. 124[3].

Hab. NORTH AMERICA, New Jersey[3], S. Carolina[3], Indiana[1 2].—MEXICO, Tepetlapa in Guerrero, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, Rio Naranjo, Paso Antonio, Guatemala city (*Champion*); PANAMA, Tolé (*Champion*).

Not rare in Guatemala. Our specimens vary a good deal in size—from $4\frac{3}{4}$–$6\frac{1}{4}$ millim. in length. An example from Paso Antonio is figured.

Subfam. *CHRYXINÆ*.

The single genus referred to this subfamily cannot be included in any of the groups of Reduviidæ as tabulated by Stål. It differs from the Acanthaspidinæ in the absence of ocelli, from the Tribelocephalinæ in the very much less developed membrane, and from the Saicinæ in the short basal joint of the antennæ. The presence or absence o ocelli must be regarded as of primary importance in the systematic arrangement of the Reduviids *.

* Stål places the monotypic South-American genera *Vescia* and *Belminus*, which are without ocelli, amongst the Acanthaspidinæ, though in his Tables he uses the presence of ocelli as one of the principal characters of that subfamily !

CHRYXUS, n. gen.

Head transverse, abruptly declivous in front, convex behind, longitudinally sulcate down the middle, and with a transverse interocular groove, the genæ placed below the eyes and not visible from above; the post-ocular portions rounded externally and shorter than the eyes; antenniferous tubercles small, not prominent; eyes coarsely faceted, rounded, occupying the whole of the sides of the head in front; antennæ inserted close to the eyes, joint 1 rather stout, not longer than the head, 2 more slender than, and twice as long as, 1, 3 and 4 very slender, 3 shorter, and 4 a little longer, than 2; rostrum very stout, short, joints 1 and 2 subequal in length, 3 short and triangular. Pronotum broader than long, deeply sulcate down the middle, the lobes separated by a deep transverse groove; the anterior lobe shorter than the posterior lobe and about as wide as the head with the eyes; the posterior lobe broad, rapidly and obliquely narrowing forwards and unemarginate behind; the hind angles swollen, rounded. Scutellum armed at the apex with a short, stout, semierect, spiniform process. Elytra ample, reaching the apex of the abdomen; corium coriaceous, sharply and obliquely separated from the membrane; the latter largely developed, with one very large cell extending from the base to more than half its length, the nervures enclosing it uniting posteriorly and one of them extending thence to the apex. Abdomen rounded at the sides, the connexivum extending outwards to some distance beyond the elytra. Anterior coxæ moderately prominent, contiguous. Legs rather short, moderately stout, the anterior femora unarmed and feebly incrassate, the tarsi 3-jointed. Body obovate, depressed, tomentose.

1. **Chryxus tomentosus,** n. sp. (Tab. XI. figg. 9, 9 *a*, ♂.)

♂. Moderately elongate, rather broad, shining; black, the anterior lobe of the pronotum and the scutellum partly piceous; the corium flavous, with nearly the apical half nigro-piceous; the clavus with the basal half piceous and the rest flavous; the membrane whitish, with a large oval spot in the cell and a broad lunate patch at the apex nigro-fuscous; the connexivum in great part flavous, the apex only of each segment black; the antennæ with joints 1 and 2 ochreous, and the others fuscous; the legs (including the coxæ) ochreous; the body, legs, eyes, antennæ, corium, and clavus somewhat thickly clothed with very long, fine, erect, pallid hairs, the hairs on the body and elytra arising from very minute punctures. Antennæ rather more than half the length of the body. Pronotum strongly constricted at the sides; the anterior lobe obliquely wrinkled on each side of the median groove; the posterior lobe broadly depressed in the middle, and also depressed on each side near the hind angles, the median groove sharply defined; the anterior angles unarmed.

Length 5, breadth 2 millim. (♂.)

Hab. PANAMA, David in Chiriqui (*Champion*).

Two males, both in a perfect state of preservation.

Subfam. *STENOPODINÆ.*

This subfamily of Reduviidæ is chiefly characterized by the thickened, porrect basal joint of the antennæ, the other joints being very slender and folding longitudinally backwards beneath the head and first antennal joint, and by the presence of a sharply defined discal area on the elytra. In two of the Central-American forms the second and third joints of the anterior tarsi are more or less fused into one, but no importance can be attached to this character.

PNIRONTIS.

Pnirontis, Stål, Öfv. Vet.-Ak. Förh. xvi. p. 381 (1859); Hemipt. Afr. iii. p. 149; Hemipt. Fabr. i. p. 126; Enum. Hemipt. ii. p. 120.

Centromelus, Fieber, Europ. Hemipt. pp. 42, 151 (1861).

This genus contains about a dozen described species, all but one or two of which are American. It is easily recognizable by the spiniform prolongation of the basal joint of the antennæ, this latter being stout and rigid and extending beyond the point of insertion of the second joint, the joints 2–4, which are very slender, folding backwards in repose and received (with the rostrum) in the groove along the underside of the head.

Antennæ with the basal joint extending far beyond the point of articulation with the second joint, and spinose beneath; anterior femora and tibiæ armed beneath, along both edges, with very long spines of unequal length; eyes not prominent	*spinimanus*, n. sp.
Antennæ with the basal joint extending to a little beyond the point of articulation with the second joint; anterior femora armed beneath, along both edges, and the anterior tibiæ on the inner edge, with long spines; eyes prominent.	
The basal joint of the antennæ spinose beneath; genæ not prominent . .	*infirma*, St.
The basal joint of the antennæ unarmed beneath; genæ very prominent . .	*languida*, St.

1. **Pnirontis spinimanus**, n. sp. (Tab. XI. figg. 10, 10 *a*, ♀.)

♀. Very elongate, narrow, subfusiform; pale greyish-ochreous, the elytra with a small nigro-fuscous spot on the inner part of the discal cell, the costal margin whitish, the two terminal joints of the antennæ fuscous, the venter with two narrow fuscous vittæ, the spines on the anterior legs annulated with fuscous, the spiracles blackish; the basal joint of the antennæ, the head, pronotum, and pleura finely granulate, the rest of the body sparsely clothed with very short, fine, scale-like hairs; the basal joint of the antennæ beneath, and the head on each side beneath, before and behind the eyes, armed with a row of setiferous spines, those on the posterior portion of the head tending to coalesce in pairs. Head cylindrical, as long as the pronotum, the ante-ocular portion rather longer than the post-ocular portion, the eyes not prominent, the ocelli small, the antenniferous tubercles scarcely produced in front, the two frontal spines short, the genæ moderately prominent; antennæ with the basal joint stout, rigid, as long as the head, tapering forwards, extending to nearly one-half its length beyond the point of articulation with the second joint, the latter long and slender, reaching to the anterior margin of the eye, joints 3 and 4 very slender, 3 short, 4 three times the length of 3. Pronotum longer than broad, narrowing forwards, carinate at the sides, the anterior lobe canaliculate down the middle, the anterior angles armed with a short oblique spine, the hind angles a little swollen. Scutellum produced into a short spine behind. Elytra reaching the base of the sixth segment. Abdomen a little rounded at the sides, narrowing from about the middle; sixth dorsal segment arcuate-emarginate at the apex; first genital segment transverse, rhomboidal; second genital segment long, bilobed at the tip. Anterior femora armed beneath on the inner edge with six, and on the outer edge with four long spines, these becoming very much longer outwards, between which is a series of very short setiferous spines; anterior tibiæ bowed inwards, armed on the lower inner edge with three, and on the outer edge with four long spines, the apical outer spine exceedingly elongate (a little longer than the tarsus), and with a few very short setiferous spines between them. Prosternal spines long and acute. Venter carinate to the apex of the fifth segment. Length 13, breadth 2 millim.

Hab. GUATEMALA, near the city (*Salvin*).

One specimen. This remarkable insect is closely allied to the South-American *P. serripes* (Fabr.), but it differs in numerous details from Stål's lengthy description of that species (Hemipt. Fabr. i. pp. 126–128).

2. **Pnirontis infirma.** (Tab. XI. figg. 11, 11 *a*, ♂ ; 12, apex of the abdomen, ♀ .)

Pnirontis infirma, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 382 (♂) [1].

Pnirontis (*Centromelus*) *infirma,* Stål, Hemipt. Fabr. i. p. 129, nota [2] ; Enum. Hemipt. ii. p. 120 [3].

Hab. North America, Carolina [1 2 3].—Mexico, Teapa in Tabasco (*H. H. Smith*) ; Guatemala, Torola (*Champion*) ; Panama, Bugaba (*Champion*).—N. Brazil [2 3] ; Antilles, Cuba [2 3].

Numerous examples were found at Teapa and Bugaba. Easily separable from *P. languida* by the basal joint of the antennæ being without spines beneath and the genæ extending very little beyond the antenniferous tubercles. A male from Bugaba and a female from Teapa are figured.

3. **Pnirontis languida.** (Tab. XI. figg. 13, 13 *a*, ♂ .)

Pnirontis languida, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 382 (♂) [1].

Pnirontis (*Centromelus*) *languida,* Stål, Hemipt. Fabr. i. p. 129, nota [2] ; Enum. Hemipt. ii. p. 120 [3].

Hab. North America, Carolina [1 2 3], Texas [2 3].—Panama, Volcan de Chiriqui (*Champion*).—Brazil [1 2 3].

One male specimen of this species was obtained by myself in Chiriqui. In his first description [1] Stål states that the head has a single frontal spine, but subsequently [2] he mentions two, slender, contiguous spines ; the Chiriqui example agrees with his amended diagnosis.

PYGOLAMPIS.

Pygolampis, Germar, Reise nach Dalm. p. 286 (1817) ; Burmeister, Handb. der Ent. ii. p. 243 ; Stål, Hemipt. Fabr. i. p. 126 ; Öfv. Vet.-Ak. Förh. 1859, p. 378, and 1872, p. 47 ; Hemipt. Afr. iii. p. 149 ; Enum. Hemipt. ii. p. 121, and iv. pp. 84, 85.

Ochetopus, Hahn, Wanz. Ins. i. p. 176 (1831).

A widely distributed genus containing eleven described species, three of which are American, one of them occurring within our limits.

1. **Pygolampis spurca.** (Tab. XI. figg. 14, 14 *a*, ♂ ; 15, apex of abdomen, ♀ .)

Pygolampis spurca, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 379 (♀) [1] ; Enum. Hemipt. ii. p. 121 [2].

Hab. Panama (*Mus. Vind. Cæs.* : ♀), Bugaba, Volcan de Chiriqui (*Champion* : ♂). —Guiana, Surinam [1].

Two males and one female from Panama apparently belong to this species ; but they differ from Stål's brief diagnosis in having a blackish ring on the anterior and intermediate tibiæ before the middle, the extreme apex also being black. The

abdomen in the male extends very little beyond the elytra; the fifth segment is subangularly dilated at the outer apical angles; and the sixth segment is subparallel and produced on each side at the apex into a short rounded lobe, the apical margin being truncate in the middle, leaving the terminal genital segment very narrowly exposed. The abdomen in the female is gradually narrowed behind, and extends to far beyond the elytra; it has the terminal genital segment produced into a long caudiform process, and the fifth ventral segment very deeply emarginate at the apex. The venter is obsoletely canaliculate down the centre in both sexes. The head has a row of stout setiferous spines on each side beneath, both before and behind the eyes, those behind the eyes being partly fused and forming irregular bifurcate processes. The anterior femora are only moderately incrassate and unarmed.

GNATHOBLEDA.

Gnathobleda, Stål, Öfv. Vet.-Ak. Förh. xvi. p. 380 (1859); Hemipt. Fabr. i. p. 126, nota; Enum. Hemipt. ii. p. 121.

Two of the three described species of this American genus occur in Central America. It is chiefly recognizable by the row of stout setiferous spines on each side of the post-ocular portion of the head beneath, these being sometimes fused and forming irregular bifurcate processes. The anterior femora are strongly incrassate and armed with two rows of short spines beneath.

Rather slender; anterior femora pale; the spines beneath the head separate . . *fraudulenta*, St.
More robust; anterior femora biannulate; the spines beneath the head fused into one or two bifurcate processes . . . . . *litigiosa*, St.

1. **Gnathobleda fraudulenta.** (Tab. XI. figg. 16, 16 *a*, ♀.)

Gnathobleda fraudulenta, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 380 (♀) [1]; Enum. Hemipt. ii. p. 121 [2].

Hab. Panama, David in Chiriqui (*Champion*).—Guiana, Surinam [1 2].

Of this species, the type of the genus, we possess a pair from the "tierra caliente" of Chiriqui. The male, as in *G. litigiosa*, has the abdomen obtuse at the apex, the terminal genital segment being produced into a caudiform process in the female.

2. **Gnathobleda litigiosa.** (Tab. XI. fig. 17, ♂.)

Gnathobleda litigiosa, Stål, Stett. ent. Zeit. 1862, p. 442 (♂ ♀) [1]; Enum. Hemipt. ii. p. 121 [2].

Hab. Mexico (*Mus. Holm.* [1 2]; *coll. Signoret* [1], *in Mus. Vind. Cæs.*).

The types of this species are before me, and our figure is taken from one of them. *G. tumidula*, Stål, from Texas, is doubtfully distinct from *G. litigiosa*.

SCHUMANNIA, n. gen.

Head subcylindrical, produced anteriorly beneath the points of insertion of the antennæ, the genæ each armed with a short porrect spine; the upper ante-ocular portion of about the same length as the post-ocular portion, the sides of the latter a little rounded and armed with a row of four laterally projecting stout setiferous spines; frontal spines (jugæ) moderately long, porrect, divergent; antenniferous tubercles each armed externally with a short spine; eyes rounded, very prominent; ocelli moderately prominent; antennæ very short, with joint 1 about as long as the entire anterior portion of the head; rostrum short, joint 1 slightly longer than 2 and 3 united, the latter equal in length. Prothorax elongate; the propleura dilated anteriorly and extending forwards to beyond the base of the head; the prosternal spines very short and scarcely distinguishable from the setiferous spines on the anterior portion of the pleura; the anterior angles of the pronotum unarmed. Scutellum with a prominent erect tubercle at the apex, the post-scutellum also with a tubercle in front. Elytra ample, nearly reaching the apex of the abdomen, with the inner margin strongly sinuate before the apex, the latter pointed. Abdomen (♂) elongate, widening to the middle, with narrow connexivum, the outer apical angles of the terminal segments more or less angularly dilated. Anterior coxæ inserted very far forwards. Anterior trochanters spinose and with one longer spine at the apex beneath. Anterior femora strongly incrassate, armed beneath with rows of very short spines and with two or three longer spines at the base. Anterior tibiæ as long as the femora, and with a short spongy fossa at the apex beneath. Anterior tarsi with joints 2 and 3 fused into one, the other tarsi distinctly 3-jointed. Posterior femora not reaching the apex of the abdomen. Mesosternum greatly produced anteriorly, rounded in front. Body very elongate, narrow.

A single species from Mexico is referred to this genus. It cannot be included in *Ctenotrachelus*, Stål, which has a short head and a very narrow, parallel body, or in *Sastrapada* *, Amyot et Serv. (=*Harpagochares*, Stål, and *Ctenocnemis*, Fieb.), the latter not having a spongy fossa at the apex of the anterior tibiæ beneath, &c.

1. **Schumannia mexicana,** n. sp. (Tab. XI. figg. 18, 18*a*, ♂.)

♂. Greyish-ochreous, mottled with fuscous; the head with a broad blackish median vitta, separating into two narrow lines in front: the pronotum with a blackish median line, the anterior lobe in great part fuscous; the scutellum black; the elytra with a pale greyish streak extending along the outer cell of the membrane to the apex, an interrupted, oblique fuscous streak, commencing along the inner margin and extending to near the apex, and a row of very small fuscous spots on the outer cell of the membrane; the connexivum spotted with black; the legs and antennæ ochraceous, the femora slightly speckled with fuscous, the anterior and intermediate tibiæ with the apex and some spots near the middle nigro-fuscous, the longer spines on the anterior trochanters and femora black, the tarsi fuscous; beneath ochraceous, mottled with fuscous; the body sparsely pubescent, the pronotal margins, the propleura in front, and the ante-ocular portion of the head beneath, armed with short setiferous spines; the antennæ and rostrum clothed throughout with long projecting hairs; the legs hairy, the anterior femora with two rows of short setiferous spines behind, as well as two rows of short spines beneath. Antennæ with joint 1 much stouter than 2, 2 slender, nearly twice as long as 1, 3 very slender, short (4 broken off). Prothorax at the sides nearly twice as long as broad, narrowing from the base to the middle, and then becoming subcylindrical; the pronotum with the posterior lobe much shorter than the anterior lobe, the latter canaliculate down the middle, and with a deep fovea in the centre and a sinuous groove on each side behind, the anterior margin thickened, and the hind angles obtuse and a little swollen. Abdomen gradually widening to about the middle, with the outer apical angles of the segments becoming more and more dilated, that of the fifth segment strongly so; the fifth segment parallel; the sixth segment

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* *S. longicollis*, Walk., from the Amazons, is a *Ctenotrachelus*, allied to *C. macilentus*, Stål; *S. filiformis*, Walk., from the Amazons, is a *Pnirontis*.

triangularly produced on each side posteriorly, the apex appearing deeply arcuate-emarginate, and not quite covering the terminal genital segment. Ventral segments 1–3 carinate.
Length 18; breadth of the pronotum $2\frac{1}{2}$, of the abdomen $3\frac{1}{2}$ millim.

Hab. MEXICO, Atoyac in Vera Cruz (*Schumann*).

One specimen. The longer spines on the anterior trochanters and femora are black, and therefore very conspicuous.

APRONIUS.

Apronius, Stål, Hemipt. Afr. iii. p. 150 (1865); Hemipt. Fabr. i. p. 127, nota (1868); Enum. Hemipt. ii. p. 123.

Head subcylindrical, armed along the centre beneath with two rows of setiferous spines; the ante-ocular and post-ocular portions about equal in length, the latter shorter in *A. rapax*, Stål; the lower anterior portion produced beneath the short, obtuse, frontal spines, and rounded in front; the eyes very large and rounded, narrowly separated beneath; antennæ short, the basal joint much shorter than the head; rostrum with the basal joint slightly longer than the second, reaching about as far as the anterior margin of the eyes. Pronotum as long as broad, much longer than the head. Scutellum produced into a short, horizontal, spiniform process behind. Elytra ample, in both sexes extending to the apex of the abdomen, pointed at the tip. Abdomen in both sexes rounded at the sides, with very narrow connexivum, the two genital segments exposed in the female; venter carinate to the apex of the fifth segment. Anterior femora compressed and incrassate, armed with two rows of very short spines beneath, the anterior trochanters also with two short spines. Anterior tibiæ with an elongate spongy fossa at the apex beneath. Anterior tarsi distinctly 3-jointed. Posterior femora nearly reaching the apex of the abdomen in the male.

Stål referred a single species, *A. rapax*, from Minas Geraes, Brazil, to this genus; an allied form from Panama is now added. *Apronius* is closely related to *Oncocephalus*, Klug, a genus including a number of species from all parts of the world; but differs from it in the armature of the underside of the head, the position of the eyes, and the pointed elytra. The definition given above will supplement that of Stål.

1. **Apronius octonotatus,** n. sp. (Tab. XI. figg. 22, 22 *a*, ♂.)

Elongate-obovate, sordid reddish-ochreous, slightly mottled with fuscous; the anterior lobe of the head with two posteriorly coalescent lines in the centre, and the posterior lobe with the sides and a broad posteriorly narrowing median vitta (leaving two pale oblique lines), the pronotum with a narrow median vitta, separating into two lines posteriorly, and a median line on the scutellum, black or nigro-fuscous; the elytra with four very small velvety nigro-fuscous spots—one a little below the base, one on the inner part of the discoidal cell, a still smaller one nearer the inner margin, and one at about the middle of the outer cell of the membrane; the legs yellowish-ochraceous, the femora much mottled with fuscous, the fuscous markings tending to become coalescent towards the apex of the anterior and intermediate pairs, the anterior and intermediate tibiæ with two or three fuscous rings, the posterior tibiæ infuscate at the apex; the entire under surface mottled with fuscous, the pleura partly blackish; the connexivum mottled with black; the antennæ with the basal joint obscure ferruginous, the other joints ochraceous; the body sparsely clothed with very short scale-like hairs, the legs with fine hairs; the antennæ finely pubescent, joints 2–4 clothed with long projecting hairs in the male, the apex only of joint 2 with long hairs in the female. Head armed along the centre beneath with two rows of four subequidistant setiferous spines—the two pairs between the eyes in the form of stout conical prominences, the others very short; the frontal spines short, obtuse, divergent; the base feebly bituberculate; the eyes very large, rounded, and prominent in the male, a little smaller in the female; antennæ with joint 1 moderately stout, nearly half the length of 2, 2 slender, 3 and 4 very slender and subequal in length. Pronotum rapidly narrowing from the base

forwards, a little longer than broad, unarmed at the sides, canaliculate down the middle of the anterior lobe posteriorly, the anterior angles produced into a short tooth, the hind angles nodose and slightly prominent. Abdomen rounded at the sides beyond the middle; the sixth segment in the male subtruncate and feebly emarginate at the apex; the first genital segment in the female broadly exposed and trapezoidal in shape, the second segment very small and received within the apical emargination of the first; the fifth ventral segment in the female cleft almost to the base, leaving the sixth segment largely exposed. Prosternal spines very short.

Length $14\frac{1}{2}$–$16\frac{1}{4}$, breadth $3\frac{7}{8}$–4 millim. (♂ ♀.)

Hab. PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

One pair, also a nymph probably belonging to the same species. Narrower than *A. rapax*, Stål, the type of which is before me, with the post-ocular portion of the head longer, the pronotum longer than broad, the prosternal spines much shorter, the small blackish spots on the elytra very distinct.

STENOPODA.

Stenopoda, Laporte, Essai d'une Class. Syst. Hémipt. in Guérin's Mag. Zool. 1832, p. 26; Stål, Öfv. Vet.-Ak. Förh. 1859, p. 383; Hemipt. Afr. iii. p. 149; Hemipt. Fabr. i. p. 127, nota; Enum. Hemipt. ii. p. 122.

A Tropical-American genus containing three or four described species, one of which extends through Central America to the Southern United States.

1. Stenopoda culiciformis.

Cimex culiciformis, Fabr. Syst. Ent. p. 728 (1775)[1]; Mant. Ins. ii. p. 308[2].
Gerris culiciformis, Fabr. Ent. Syst. iv. p. 189[3]; Syst. Rhyng. p. 262[4].
Stenopoda culiciformis, Stål, Hemipt. Fabr. i. p. 129[5]; Enum. Hempt. ii. p. 122[6]; Uhler, P. Z. S. 1893, p. 706[7], and 1894, p. 210[8]; Bull. U.S. Geol. & Geogr. Surv. i. p. 332[9].
Stenopoda cinerea, Lap. Essai d'une Class. Syst. Hémipt. in Guérin's Mag. Zool. 1832, p. 26, t. 52. figg. 2, 2 *a*, *b*[10]; Amyot et Serv. Hist. Nat. Ins. Hémipt. p. 390, t. 7. figg. 8, 8 *a*[11]; Guér. in Sagra's Hist. fis. polit. y nat. de Cuba, Ins. p. 172[12] (nec Herr.-Schäff.).
Stenopoda subinermis, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 384[13]; Enum. Hemipt. ii. 122[14].
Stenopoda cana, Uhler, P. Z. S. 1894, p. 210 (nec Stål)[15].

Hab. NORTH AMERICA[11], Texas[5], Southern States[9].—MEXICO, Presidio de Mazatlan (*Forrer*), Atoyac in Vera Cruz (*Schumann*), Temax in North Yucatan (*Gaumer*); GUATEMALA, San Juan in Vera Paz, San Isidro (*Champion*), Coban (*Conradt*); NICARAGUA, Chontales, San Domingo (*Janson*); PANAMA[9].—COLOMBIA[13 14]; ANTILLES, Cuba[5 6 9 10 11 12], Haiti, St. Vincent[7], Grenada[8 15].

We have received ten specimens of this species, including one larva and one nymph. The hind angles of the pronotum vary in shape, being sometimes produced into a sharp spine (as in all the examples I have seen from St. Vincent, Grenada, and Texas); in *S. subinermis*, Stål, they are moderately prominent, as in most of the Central-American specimens before me.

NARVESUS.

Narvesus, Stål, Öfv. Vet.-Ak. Förh. xvi. pp. 383, 384; Hemipt. Fabr. i. p. 128, nota; Enum. Hemipt. ii. p. 124; Reuter, Act. Soc. Fenn. xii. p. 675 (1882).

A monotypic genus peculiar to the Southern United States, Mexico, and the Antilles.

1. **Narvesus carolinensis.** (Tab. XI. fig. 19, ♀.)

Narvesus carolinensis, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 385[1]; Enum. Hemipt. ii. p. 124[2]; Reuter, Act. Soc. Fenn. xii. p. 748, t. 3. figg. 51, 52[3]; Uhler, P. Z. S. 1893, p. 706[4], and 1894, p. 210[5]; Bull. U.S. Geol. & Geogr. Surv. i. p. 332[6].

Hab. North America, Missouri[6], Carolina[3 6], Texas[3 6].—Mexico, Amula in Guerrero (*H. H. Smith*: ♀), Valladolid in Yucatan (*Gaumer*: ♂).—Antilles, Cuba[3 6], St. Vincent[4], Grenada[5].

Two specimens only of this species have been received from within our limits. The female is considerably larger than the male, and it has the dark patch on the outer cell of the membrane very elongate; in the first-mentioned sex the apex only of the second joint of the antennæ is clothed with long hairs, whereas in the male the antennæ are hairy throughout, as noted by Stål[2].

DIADITUS.

Diaditus, Stål, Ofv. Vet.-Ak. Förh. xvi. p. 383 (1859); Hemipt. Afr. iii. p. 150; Hemipt. Fabr. i. p. 128; Enum. Hemipt. ii. p. 128, nota.

The two described species of *Diaditus* are from Buenos Ayres or Monte Video. The two others now added agree very well with Stål's definition of the genus, but in one of them the anterior tarsi have their two apical joints almost fused into one, a peculiarity also observable in the type of *D. semicolon*. The head is unarmed beneath, subcylindrical, with the ante-ocular portion a little longer than the post-ocular, and the lower anterior portion not extending forwards beneath the base of the jugæ or frontal spines, the latter being long and porrect; the antenniferous tubercles are armed externally with a short oblique spiniform process (appearing emarginate above the points of insertion of the antennæ); the basal joint of the antennæ is not longer than the head; the rostrum is short, with the basal joint about reaching to the middle of the eyes and as long as the two others united; the anterior femora are unarmed, and very little stouter than the others; the posterior femora in the males nearly reach the apex of the abdomen; the scutellum is produced into a horizontal spiniform process at the apex.

Antennæ rather elongate, with joint 1 almost as long as the head, 2 about one-half longer than 1, and clothed with long projecting hairs (♂); frontal spines moderately stout, somewhat pointed; eyes very large; anterior tarsi freely 3-jointed . . . . . *hirticornis*, n. sp.

Antennæ shorter, with joint 1 shorter than the head, 2 about one-fourth longer than 1 and clothed with short projecting hairs (♂); frontal spines stout, blunt at the tip; eyes smaller; anterior tarsi with joints 2 and 3 almost fused into one . . . . . *pictipes*, n. sp.

1. **Diaditus hirticornis**, n. sp. (Tab. XI. fig. 20, ♂.)

♂. Elongate-obovate, greyish-ochreous, the head and antennæ in great part fuscous; the pronotum with two lines along the middle, connected anteriorly, and the scutellum with a narrow stripe on each side, black; the elytra with the inner margin opposite the apex of the scutellum, a large subtriangular patch on the discoidal area, a small oblong spot in the cell in front of it, an elongate patch, deeply excised in front, on the outer cell of the membrane, and a small spot at its base, velvety brownish-black, the rest of the membrane slightly mottled with fuscous; the legs flavous, the tarsi and hind femora (the extreme base excepted) fuscous, the anterior and intermediate femora mottled with fuscous (except at the base), and the anterior and intermediate tibiæ with the base and apex and an annulus near the middle similarly coloured; the connexivum slightly mottled with fuscous; the body beneath ochraceous, the pleura in great part and a stripe down each side of the venter, as well as the rostrum, nigro-fuscous; the body sparsely clothed with very short scale-like hairs, the legs with bristly hairs; the antennæ with joint 1 finely pubescent, 2 with long bristly hairs all round, and 3 and 4 with much shorter and finer hairs. Head with large and prominent ocelli, which are placed on a transverse raised prominence; eyes coarsely faceted, very large, prominent, and rounded; frontal spines (jugæ) rather slender, divergent, and somewhat pointed at the tip; antennæ with joint 1 almost as long as the head, 2 comparatively stout, about one-half longer than 1, 3 and 4 very slender, 4 a little longer than 3. Pronotum rapidly narrowing from the base forwards, as long as broad, with two posteriorly diverging carinæ on the disc, the hind angles obtuse and slightly raised, the anterior angles produced into a short tooth. Elytra nearly reaching the apex of the abdomen. Abdomen gradually narrowing from about the middle, rounded at the sides; the sixth segment at the apex somewhat obliquely truncated on each side and feebly emarginate in the centre. Prosternal spines short. Anterior tarsi distinctly 3-jointed.

Length 9, breadth $2\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

One specimen. Smaller than *D. semicolon*, Stål, with longer and more slender jugæ, less prominent eyes, less acute anterior angles to the pronotum, &c.

2. **Diaditus pictipes**, n. sp. (Tab. XI. fig. 21, ♂.)

Very like *D. hirticornis* and similarly coloured, but sometimes with the head and the basal joint of the antennæ paler; the pronotum with the median space between the two carinæ usually infuscate; the femora and tarsi more or less fuscous; the tibiæ flavous, each with the base and apex fuscous or blackish, the anterior and intermediate pairs with a fuscous ring about the middle, that on the intermediate pair sometimes obsolete; the antennæ with joints 2–4 clothed with short fine projecting hairs. Head with the ocelli in the male moderately large and placed on a slightly raised prominence, smaller in the female; eyes moderately large in the male, smaller in the female, transverse if viewed laterally; frontal spines stout, approximate, blunt at the tip; antennæ with joint 1 considerably shorter than the head, 2 rather slender, about one-fourth longer than 1, 3 and 4 very slender, 4 slightly longer than 3. Pronotum as in *D. hirticornis*. Abdomen with the sixth dorsal segment slightly emarginate in the centre at the apex in the male and rounded in the female; the female with two genital segments visible from above—the first broad, declivous, and trapezoidal in shape, the second short and strongly transverse. Prosternal spines short. Anterior tarsi with the second and third joints almost fused into one.

Length 8–$8\frac{1}{2}$, breadth $2\frac{1}{2}$–$2\frac{9}{10}$ millim. (♂ ♀.)

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*: ♂ ♀); GUATEMALA, Dueñas (*Champion*: ♀).

Nine specimens from Mexico and one from Guatemala, the latter being broader, darker, and more robust than the single Mexican female received. In one example the anterior tarsi have the second and third joints separated by a distinct suture.

This insect closely resembles *D. semicolon*, Stål, the type of which is before me*; but it is smaller and less elongate, and has shorter legs, smaller eyes, a shorter third joint to the antennæ, less acute anterior angles to the pronotum, and the frontal processes (jugæ) stout to the tip.

Subfam. *SALYAVATINÆ.*

The only known American representative of this subfamily occurs within our limits; the other five genera are confined to the tropical regions of the Old World.

SALYAVATA.

Salyavata, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 349 (1843); Stål, Hemipt. Afr. iii. p. 144; Enum. Hemipt. ii. p. 120, and iv. p. 80.

In this genus the anterior tarsi are 2-, and the other tarsi 3-jointed; and the antennæ have their slender third and fourth joints fused into one, so as to appear 3-jointed.

1. **Salyavata variegata.** (Tab. XI. figg. 25, 25 *a*, ♂.)

Salyavata variegata, Amy. et Serv. loc. cit. p. 350, t. 6. fig. 6[1]; Stål, Enum. Hemipt. ii. p. 120[2]; Walk. Cat. Hemipt. Heteropt. viii. p. 7[3].

Hab. Nicaragua, Chontales (*Janson*); Panama (*Boucard*), Bugaba (*Champion*).—Guiana, Cayenne[1]; N. Brazil[2]; Amazons, Pará[3].

We possess six specimens of this species, five of which are from Bugaba. The male has the first genital (ventral) segment greatly inflated, with its apical margin strongly bisinuate. A male from Bugaba is figured.

Subfam. *ACANTHASPIDINÆ.*

This subfamily of Reduviidæ includes a large number of conspicuous insects, most of which are found under bark or upon decaying timber. Some of the species of *Conorrhinus* attack man. They all emit a very fœtid odour when handled. The Acanthaspidinæ are chiefly confined to the tropics.

NALATA.

Nalata, Stål, Rio Jan. Hemipt. p. 79 (1858) (part.); Hemipt. Afr. iii. p. 123; Enum. Hemipt. ii. pp. 110, 119, and iv. p. 66.

A well-defined genus, including several closely allied Tropical-American forms†.

* The specimen sent to me by Dr. Aurivillius as the type is a male, and not a female, as stated by Stål.

† *Opinus pygmæus,* Walk., is a *Microlestria* and = *plebeja*, Stål.

Two of the species originally referred to it were subsequently transferred by Stål to his genus *Microlestria*. The *Nalatæ* differ *inter se* in the size and arrangement of the tubercles on the anterior lobe of the pronotum, as well as in the relative length of the basal joint of the antennæ and the form of the scutellar process. The colour is more or less variable. The head has three prominent, conical, setiferous tubercles on each side beneath. The femora are asperate and setose; the anterior pair are strongly incrassate and armed beneath with two rows of short spines, amongst which are a few longer and stouter ones. The anterior tibiæ are armed with a row of short fine spines, sometimes (*N. nigrescens*) with stouter and longer spines intermixed. The anterior trochanters are armed with a stout spine.

Anterior lobe of the pronotum with two larger prominences or tubercles, separated by an oblique groove, on each side of the median sulcus; the head with moderately prominent tubercles above.	
Antennæ with the basal joint infuscate: species larger and of dark coloration.	
Pronotal tubercles very prominent; scutellar process cristate . .	*quadrituberculata*, n. sp.
Pronotal tubercles not prominent; scutellar process not cristate. .	*nigrescens*, n. sp.
Antennæ with the basal joint pale and relatively very short: species smaller and paler, with the membrane and corium more or less variegate	*irrorata*, n. sp.
Anterior lobe of the pronotum and the head with numerous very prominent stout conical tubercles	*spinicollis*, n. sp.
Anterior lobe of the pronotum with small scattered conical tubercles, those on the disc more or less arranged in two series on each side of the median sulcus, these series each continued as an oblique ridge on to the posterior lobe.	
Anterior lobe of the pronotum with a regular marginal row of tubercles, the other series also regularly arranged	*rudis*, St.
Anterior lobe of the pronotum with scattered irregularly arranged tubercles at the sides.	
The tubercles on the disc prominent, and forming regular series. .	*fuscipennis*, St.
The tubercles on the disc not very prominent, and forming irregular series	*setulosa*, St.

1. **Nalata quadrituberculata**, n. sp. (Tab. XI. figg. 23, 23 *a*, ♂.)

Moderately elongate, rather broad, fuscous or nigro-fuscous, the under surface slightly mottled with ochreous, the connexivum with the apex of each segment ochreous; the elytra with a large common patch adjoining the apex of the scutellum, and a spot at the base of each of the two inner cells of the membrane, nigro-fuscous; the femora, tibiæ, and rostrum more or less distinctly annulated with ochreous; the antennæ, rostrum, legs, and body set with long, scattered, bristly hairs, the body and corium also sparsely clothed with short, stout, curled, decumbent, ochreous or rusty-brown hairs. Head with moderately prominent tubercles above, the ocelli prominent, the eyes large and prominent; antennæ elongate, joint 2 nearly twice as long as 1, 3 longer than 2, 4 about half the length of 3. Pronotum with the anterior lobe gibbous and strongly bituberculate on each side of the median groove, the scattered tubercles small and

rather prominent; the posterior lobe moderately dilated, with indications of one or two oblique ridges on each side of the broad median depression. Scutellum with the apical process compressed and cristate, and also tuberculate. Femora moderately asperate.

Length $8\frac{1}{2}$, breadth $2\frac{4}{5}$–3 millim. (♂ ♀.)

Hab. NICARAGUA, Chontales (*Janson*); PANAMA, Volcan de Chiriqui (*Champion*).

Nine specimens. Easily distinguishable by its comparatively large size and dark coloration, the strongly quadri-tuberculate anterior lobe of the pronotum, the cristate scutellar process, and the common black patch on the inner portion of the elytra towards the base. Viewed in profile, the compressed scutellar process appears to be arcuately dilated upwards. A specimen from Chiriqui is figured.

2. **Nalata nigrescens,** n. sp. (Tab. XI. figg. 24, 24 *a*, ♀.)

Very like *N. quadrituberculata*, but differing from it as follows:—The corium and clavus uniformly nigro-fuscous or black, the membrane black; the four tubercles on the disc of the anterior lobe of the pronotum much less prominent, and the smaller tubercles inconspicuous; the scutellar process broadly ochreous at the tip, rather stout, and not cristate; the antennæ more elongate; the eyes larger and a little more prominent; the anterior tibiæ with a row of six stouter spines interspersed amongst the fine ones.

Length $8\frac{1}{2}$–10, breadth $2\frac{4}{5}$–$3\frac{1}{2}$ millim. (♂ ♀.)

Hab. PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

One pair. At first sight, this insect appears to be nothing but a darker form of *N. quadrituberculata*, with which, however, it cannot be associated. The two tubercles on each side of the disc of the anterior lobe of the pronotum, formed by the oblique sulcature of the callosities, are much less prominent than in that species, the inner one being almost obsolete, whereas both of them are very prominent in *N. quadri-tuberculata*. The spines on the anterior tibiæ are also coarser, and the scutellar process differently shaped.

3. **Nalata irrorata,** n. sp. (Tab. XI. fig. 26, ♂.)

Broad, sordid ochreous, slightly mottled with fuscous, the sides of the head behind the eyes, the anterior lobe of the pronotum in the middle behind, and the flattened portion of the scutellum fuscous; the corium dilute fuscous, mottled with whitish, the apex broadly fuscous; the membrane fuscous, mottled with ochreous, the two inner cells each with a blackish mark at the base; the connexivum broadly banded with fuscous or nigro-fuscous; the antennæ with joints 1 and 2 ochreous, 2 annulated with fuscous, 3 and 4 fuscous; the scutellum with the margins and apical process pale; the body beneath much mottled with fuscous; the femora with a single blackish annulus near the base; the anterior tibiæ triannulated, and the other tibiæ quadri-annulated, with black or fuscous; the rostrum ochreous, annulated with fuscous; the antennæ, rostrum, legs, and body set with long, scattered, semierect bristly hairs, the body and corium also sparsely clothed with short, stout, decumbent, curled, ochreous hairs. Head with moderately prominent tubercles above, the ocelli very small; antennæ moderately long, joint 1 short, about half the length of 2, 3 and 4 very slender, 3 as long as 1 and 2 united, 2 and 4 subequal in length. Pronotum with the anterior lobe strongly gibbous, the callosity on each side of the median groove sulcate and divided into two indefinite prominences, the scattered tubercles small and not prominent; the posterior lobe strongly dilated at the sides posteriorly, depressed in the middle, without definite ridges on the disc, their position indicated in front by small tubercles, the lateral margins asperate. Scutellum with the margins raised, the apical process rather stout. Femora strongly asperate.

Length 7, breadth $2\frac{2}{3}$–$2\frac{4}{5}$ millim. (♂ ♀.)

Hab. PANAMA, Bugaba (*Champion*).

Three specimens. Very like *N. setulosa*, but broader and more robust, with the corium and membrane mottled with paler colour, the basal joint of the antennæ shorter, and the scutellar process stouter and less compressed; the anterior lobe of the pronotum is more gibbous, the two callosities being each divided into two prominences, and the posterior lobe is without definite ridges. *N. irrorata* is also closely allied to the Brazilian *N. aspera*, Stål (the type of which is before me); but in the latter the membrane is uniformly nigro-fuscous, with the base only pale, the anterior lobe of the pronotum has two converging rows of conspicuous whitish tubercles in front, and the head is not so abruptly constricted behind.

4. **Nalata spinicollis,** n. sp. (Tab. XI. figg. 27, 27 *a*, ♀.)

Rather broad, ochreous, the sides of the head behind the eyes, the posterior lobe of the pronotum, the middle of the scutellum, and the elytra fuscous, the elytra with a spot at the inner apical angle of the corium and one at the base of each of the two cells of the membrane black; the connexivum broadly banded with fuscous; the apical two joints of the antennæ blackish; the underside of the body mottled with fuscous; the femora annulated with fuscous at the base; the tibiæ with the base, apex, and an annulus before the middle, fuscous; the antennæ, rostrum, legs, and body set with long, scattered, erect or semierect, bristly hairs or setæ, the body above and beneath, and the corium, also very sparsely clothed with short, stout, decumbent, curled, ochreous hairs. Head armed above with numerous stout conical setiferous tubercles, the two between the ocelli, the two on each side near the eyes, and the one in the centre in front being very conspicuous, the latter bearing two setæ, the ocelli small and widely separated; antennæ reaching to a little beyond the hind angles of the pronotum, joints 1 and 2 rather stout, 2 one-half longer than 1, 3 and 4 very slender, 3 nearly one-half longer than 4. Pronotum dilated behind; the anterior lobe gibbous on the disc on each side of the broad median sulcus, and armed with numerous very prominent, stout, conical, setiferous tubercles—about nine on each side, three of which are marginal; the posterior lobe with indications of two anteriorly converging ridges on the disc, these being limited in front and behind by a setiferous tubercle; the hind angles rather sharp. Scutellum with the margins raised and tuberculate, the apical process rather stout and also tuberculate above. Femora strongly asperate. Length 7–7½, breadth 2½–2⅘ millim. (♀.)

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Three specimens. This species is allied to *N. setulosa*, Stål, but differs from it, and from all others of the genus, in the very prominent, stout, conical tubercles on the head and anterior lobe of the pronotum, these being much more conspicuous than in *N. aspera*, Stål.

5. **Nalata rudis.** (Tab. XII. figg. 1, 1 *a*, ♀.)

Nalata rudis, Stål, Stett. ent. Zeit. 1862, p. 457 [1]; Enum. Hemipt. ii. p. 120 [2].

Hab. MEXICO [2] (*coll. Signoret* [1], *in Mus. Vind. Cæs.*).

The type of this insect is before me. It is very like *N. setulosa*, but the pronotum is less widened behind, and the conical tubercles on the anterior lobe are more numerous and form two well-defined series on each side of the disc and a row (of about eight) along the lateral margins, each of the series on the disc being continued on to the

posterior lobe and there forming an oblique ridge. The antennæ have their two basal joints pale; the second joint is about one-half longer than the first. The femora are strongly asperate. The tibiæ are without a dark ring at the base. The scutellar process is flavous at the tip, and rather stout.

6. **Nalata fuscipennis.** (Tab. XII. fig. 2, ♂.)

Nalata fuscipennis, Stål, Rio Jan. Hemipt. p. 80 [1]; Enum. Hemipt. ii. p. 120 [2].

Rather narrow, ochreous, the sides of the head behind the eyes, the depressed portions of the pronotum, the middle of the scutellum, and the elytra (the costal margin at the base excepted) black; the connexivum black, with a flavous spot at the apical angles of each segment; the tip of the scutellar process flavous; the two apical joints of the antennæ fuscous; the body beneath much mottled with fuscous, the basal half of the abdomen almost entirely black; the femora and tibiæ more or less annulated with fuscous, the posterior tibiæ pale at the base; the body, legs, and antennæ set with long scattered bristly hairs, the body and corium also sparsely clothed with short decumbent, curled, ochreous hairs. Head armed above with short, subconical tubercles, the ocelli small and not very widely separated; antennæ as in *N. spinicollis*. Pronotum moderately dilated behind; the anterior lobe armed on each side of the median sulcus with two rows of conical tubercles, those of the inner row closely placed and about five in number, and with an irregular scattered marginal row of similar tubercles, the four rows on the disc being each continued on to the posterior lobe and there forming an oblique ridge; the hind angles obtuse and a little swollen. Scutellum with the margins raised and tuberculate, the apical process neither thickened nor compressed at the tip. Femora moderately asperate.

Length 6–6½, breadth 2 millim. (♂.)

Hab. Panama, Tolé (*Champion*).—Colombia, Bogota [2]; Brazil, Rio Janeiro [1 2].

Two specimens. Very like *N. rudis*, but with the femora less strongly asperate, and the anterior lobe of the pronotum with fewer and less regularly arranged tubercles at the sides, the tubercles in *N. rudis* forming a distinct marginal row. In *N. fuscipennis* the series of five tubercles on each side of the median sulcus are very conspicuous; the second row is shorter, and formed by three tubercles; the marginal row is more or less irregular. One of Stål's Colombian examples has been examined.

7. **Nalata setulosa.** (Tab. XII. fig. 3, ♂.)

Nalata setulosa, Stål, Stett. ent. Zeit. 1862, p. 456 [1]; Enum. Hemipt. ii. p. 120 [2].

Hab. Mexico [1 2] (*Sichel & coll. Signoret, in Mus. Vind. Cæs.*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*); Guatemala, San Juan and Senahu in Vera Paz, Zapote (*Champion*); Panama, Bugaba, Volcan de Chiriqui, Caldera (*Champion*).

Found in plenty in Chiriqui. This species varies a good deal in colour, the pronotum and scutellum being sometimes almost entirely fuscous. The antennæ have their first joint pale, and a little more than half the length of the second. The small setiferous, scattered, conical tubercles on the disc of the pronotum are so arranged as to form two series on each side of the broad median sulcus, these being each continued as an oblique carina on the anterior portion of the posterior lobe. The scutellum has the margins raised and tuberculate; the apical process is compressed and slightly

cristate, with the tip flavous. The corium in light-coloured specimens is faintly irrorated with ochreous. The membrane is uniformly fuscous. A specimen from Bugaba is figured.

MICROLESTRIA.

Nalata, Stål, Rio Jan. Hemipt. p. 79 (1858) (part.).
Microlestria, Stål, Enum. Hemipt. ii. pp. 110, 120 (1872), and iv. p. 66.

A Tropical-American genus containing two described species, one of which occurs within our limits, whence a third is now added. The characters by which *Microlestria* may be separated from *Nalata* have not been fully noticed by Stål: the intermediate, as well as the anterior, femora are incrassate and shortly spinose beneath; the scutellar process is short; and the eyes are small. The two basal joints of the antennæ, the legs, and body are sparsely set with erect or semierect setæ, which are more or less clubbed at the tip, these being very long and conspicuous in *M. lævis*.

Head, pronotum, and scutellum dull and rugulose, the anterior lobe of the pronotum distinctly tuberculate; connexivum spotted or fasciate: body comparatively short . . . . . *fuscicollis*, St.
Head, pronotum, and scutellum shining, the anterior lobe of the pronotum obsoletely tuberculate; connexivum unicolorous, ferruginous: body elongate. *lævis*, n. sp.

1. **Microlestria fuscicollis.** (Tab. XII. figg. 4, 4 *a*, ♀.)

Nalata fuscicollis, Stål, Rio Jan. Hemipt. p. 80 [1].
Microlestria fuscicollis, Stål, Enum. Hemipt. ii. p. 120 [2].

Hab. MEXICO (*Bilimek, in Mus. Vind. Cæs.*); GUATEMALA, San Gerónimo and Chacoj in Vera Paz, El Reposo, Paraiso, Cerro Zunil, Zapote, Capetillo (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).—BRAZIL, Rio Janeiro [1 2].

Stål's type of this insect is obscure flavo-testaceous in colour, with the head, thorax, scutellum, femora, and marginal abdominal spots obscure fuscous. In all the Guatemalan and Mexican specimens before me, and also in some of those from Chiriqui, the anterior lobe of the pronotum is ochraceous; the others from Chiriqui agree with Stål's description. The corium in light-coloured specimens has the base or entire inner part pale flavous, but in the dark individuals it is entirely fuscous. The legs vary in colour. The scutellar process is short and rather stout. Our specimens vary from 4–5¼ millim. in length. The type of *M. fuscicollis* has been communicated by Dr. Aurivillius. A specimen from Zapote is figured.

2. **Microlestria lævis,** n. sp. (Tab. XII. fig. 5, ♂.)

Elongate, shining, piceous, the entire abdomen, the coxæ, and tarsi ferruginous, the membrane black; the antennæ testaceous, sometimes with the two basal joints infuscate; the body and legs set with widely scattered, very long, erect, somewhat clubbed setæ, and also, the corium included, with scattered, short, decumbent hairs; the antennæ sparsely clothed with very long, fine, projecting hairs, the two basal joints

also with a few setæ; the head, pronotum, and scutellum almost smooth. Antennæ moderately long, the two basal joints rather stout, the others very slender, joint 2 nearly twice as long as 1, 3 and 4 subequal in length, each much shorter than 2. Pronotum with the longitudinal median sulcus, as well as the transverse one, very deep, the setæ on the anterior lobe arising from inconspicuous raised points, the posterior lobe feebly transversely rugose in the central depression, the thickened anterior angles rather prominent. Scutellum shortly and acutely produced at the apex. Corium with the discal cell obliquely and narrowly extended on to the inner basal portion of the membrane.

Length 5–6, breadth $1\frac{7}{8}$–2 millim. (♂ ♀.)

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Three specimens. Very like the Brazilian *M. plebeja*, Stål * (the type, ♀, of which is before me), but smoother and more shining, with longer setæ on the body and legs, the head smaller and narrower, the general coloration much darker.

ARADOMORPHA, n. gen.

Head small, convex, cylindrical, grooved down the middle in front, the antero-lateral portions forming two stout, downwardly curved, anteriorly converging processes, these being as long as the unarmed, declivous, anteriorly widening antenniferous processes, which equal the eyes in length; the post-ocular portion short, rounded externally; the ocelli placed near the eyes and very widely separated; the eyes (viewed laterally) transverse, coarsely faceted, moderately large; antennæ short, inserted midway along the sides of the ante-ocular portion of the head, joints 1 and 2 stout, 3 and 4 slender, 1 very short, about one-fifth the length of 2, 2 nearly as long as 3 and 4 united, the latter subequal; rostrum short and stout, joint 2 elongate, 3 short. Pronotum broad, transverse, emarginate in front and unemarginate behind, divided by a deep, sinuous, transverse sulcus into two lobes of nearly equal length, the lateral constriction deep; the anterior lobe narrower than the posterior lobe, with indications of four sinuous ridges, which impinge on the transverse groove. Scutellum triangular, the apex produced into a short, stout, horizontal, spiniform process. Elytra ample, reaching the apex of the abdomen; corium coriaceous; membrane largely developed, the inner basal cell narrow, the outer one much longer and broader and connected posteriorly with a large pentagonal cell, the inner nervure of the first cell continued downwards to beyond the apex of the corium. Abdomen (♂) with the connexivum broad and extending completely round the apex. Legs short and stout; anterior femora strongly, the intermediate femora moderately, incrassate, each armed with two rows of widely scattered, short spines beneath; tibiæ with a short spine at the outer apical angle, the anterior and intermediate pairs denticulate within; tarsi 2-jointed, the claws simple. Body robust, broad, obovate, flattened above.

The single species referred to this genus has very much the facies of an Aradid; it is allied to *Epirodera*, Westw. (*nec* Signoret). It differs from the Acanthaspidinæ, as defined by Stål, in having all the tarsi 2-jointed.

1. **Aradomorpha crassipes,** n. sp. (Tab. XII. figg. 8, 8 *a*, ♂.)

♂. Reddish-brown; the head, except in front, and the tip of the scutellar process, blackish; the membrane fuscous, with the base pale flavous, this colour extending on to the apical half of the clavus; the corium with the apical third obscurely ochreous, this portion separated from the rest by an oblique curved black line; the connexivum ochreous, with the base of each segment broadly banded with fuscous; the legs brownish-ochreous, the base of the femora and the intermediate and hind tibiæ darker; the body, corium, and two basal joints of the antennæ sparsely, and the legs somewhat thickly, clothed with short, curled, decumbent, scale-like, ochreous hairs, the apical two joints of the antennæ with finer hairs, the hairs on

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* *Opinus pygmæus*, Walk. = *M. plebeja*, Stål.

the anterior lobe of the pronotum arranged in sinuous lines. Antennæ about reaching the median sulcus of the pronotum. Pronotum with both lobes rounded at the sides; the anterior lobe about twice as wide as the head, rapidly narrowing forwards, with rather prominent front angles; the posterior lobe wider, shallowly sulcate down the middle, and with a few scattered shallow punctures. Abdomen rounded at the sides and apex, the genital segments distant from the tip beneath.

Length $9\frac{1}{8}$, breadth $3\frac{2}{3}$ millim.

Hab. Panama, Tolé (*Champion*).

One specimen.

ALLŒOCRANUM.

Microcleptes, Stål, Öfv. Vet.-Ak. Förh. xxiii. p. 240 (1866); Enum. Hemipt. ii. pp. 109, 119, and iv. pp. 66, 79.

Microcleptes, Stål, subgen. *Allœocranum*, Reuter, Act. Soc. Fenn. xii. p. 332 (1881).

Allœocranum, Lethierry et Severin, Cat. gén. Hémipt., Hétéropt. iii. pp. 96, 261.

Stål based this genus upon *Opsicœtus biannulipes*, Montr. et Sign., from New Caledonia, which he also records from numerous Eastern localities and from Cuba. His Cuban specimen is now before me, and we possess an example from Panama agreeing perfectly with it. The generic name *Microcleptes* is preoccupied in Coleoptera (Newman, 1840).

1. **Allœocranum biannulipes.** (Tab. XII. fig. 6, ♂.)

Opsicœtus biannulipes, Montr. et Sign. Ann. Soc. Ent. Fr. 1861, p. 69[1].

Microcleptes biannulipes, Stål, Öfv. Vet.-Ak. Förh. 1866, p. 240[2]; Enum. Hemipt. ii. p. 119[3], and iv. p. 79[4].

Allœocranum biannulipes, Leth. et Sever. Cat. gén. Hémipt., Hétéropt. iii. p. 96[5].

Hab. Panama, Bugaba (*Champion*).—Antilles, Cuba[2 3 4 5].—New Caledonia[1 4]; Fiji Is.[2 4 5]; Philippine Is.[4]; New Guinea, Dorey (*Wallace, in Mus. Brit.*); Malacca[2 5]; Bourbon[4 5].

One male specimen.

LEOGORRUS.

Leogorrus, Stål, Stett. ent. Zeit. 1859, p. 404; Hemipt. Fabr. i. p. 125, nota; Enum. Hemipt. ii. pp. 109, 118.

This Tropical-American genus includes numerous closely-allied species, chiefly differing *inter se* in the form of head and eyes, and in the disposition of the ochreous markings on the elytra. The femora are armed with a short spine on the inner and outer sides at the apex beneath; the inner apical portions of the tibiæ, and the anterior trochanters in front, are densely clothed with fulvous hairs; the anterior and intermediate tibiæ have an elongate spongy fossa at the apex beneath; the metasternum, and the venter to a greater or less extent, is sharply carinate down the centre. In the females the sixth segment of the abdomen is truncate at the apex, and the two genital segments are exposed, the first being large and trapezoidal and the second small.

Many of the Tropical-American forms described by Walker under the genus *Reduvius*, and some of his *Pirates*, belong here *. The various species are found under bark, one of them being a very widely distributed and common insect in Tropical America.

The Central-American forms may be separated thus:—

a. Posterior lobe of the pronotum transversely rugose; head with the lateral post-ocular portions nearly twice as long as the eyes, the latter prominent; membrane with the nervures more or less bordered with ochreous: length over 18 millim. . . . . *formicarius*, Fabr.

b. Posterior lobe of the pronotum smooth or faintly rugulose: length 11–16 millim.

a'. Head with the lateral post-ocular portions not longer than the eyes, the latter large and prominent; membrane with the nervures more or less bordered with ochreous . . . . . *litura*, Fabr.

b'. Head with the lateral post-ocular portions longer than the eyes, the latter moderately large or small; membrane with the nervures not bordered with ochreous.

a''. Elytra with a rather large patch below the base, and the apex of the corium broadly, ochreous; post-ocular portions of the head a little longer than the eyes . . . . . *venator*, Stål.

b''. Elytra with a small patch below the base, and the apex of the corium broadly, ochreous; post-ocular portions of the head very much longer than the eyes . . . . . *longiceps*, n. sp.

c''. Elytra with an interrupted patch below the base, and a patch on the apical portion of the corium, not extending to the tip, ochreous; post-ocular portions of the head a little longer than the eyes, the latter prominent . . . . . *interruptus*, n. sp.

d''. Elytra with the ochreous markings united and forming a common angulated fascia; post-ocular portions of the head very much longer than the eyes, the latter not prominent . . . . . *fasciatus*, n. sp.

e''. Elytra immaculate; post-ocular portions of the head about twice as long as the eyes, the latter small . . . . . *immaculatus*, n. sp.

1. **Leogorrus formicarius.** (Tab. XII. figg. 11, 11 *a*, ♂; 11 *b*, anterior leg.)

Reduvius formicarius, Fabr. Syst. Rhyng. p. 280 (1803)[1].

Platymeris formicaria, Burm. Handb. der Ent. ii. p. 233[2]; Herr.-Schäff. Wanz. Ins. viii. p. 33, t. 260. fig. 808[3].

Leogorrus formicarius, Stål, Hemipt. Fabr. i. p. 125[4]; Stett. ent. Zeit. 1862, p. 456[5]; Enum. Hemipt. ii. p. 118[6].

Acanthaspis formicaria, Walk. Cat. Hemipt. Heteropt. vii. p. 167[7].

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* *R. guttatus* belongs to *Homalocoris*; *R. tenebrosus* to *Spiniger*; *R. decolor* to *Ectrichodia* or an allied genus; *R. pallescens* to *Sphæridops* (=*amœnus*, Lep.). *R. incommodus*, from an unknown locality, is also a *Leogorrus*.

Reduvius lugubris, Walk. loc. cit. p. 183 [8].
Reduvius plagipennis, Walk. loc. cit. p. 186 [9].
Reduvius areolatus, Walk. loc. cit. p. 186 [10].

Hab. MEXICO [5], Teapa in Tabasco (*H. H. Smith*); BRITISH HONDURAS, R. Sarstoon (*Blancaneaux*); PANAMA, David, Bugaba (*Champion*).—SOUTH AMERICA [1 4 7], Colombia [8 10], Guiana [6], Amazons [2 9], Brazil [3].

We possess eight specimens of this species from within our limits, all but two of them being from Chiriqui. Easily recognizable by its large size, the elongate post-ocular portions of the head, and the transversely rugose posterior lobe of the pronotum. The coloration of the elytra resembles that of *L. litura*, except that the ochreous markings are almost obliterated at the base of the membrane. The eyes are prominent. The hairs on the head and pronotum are short, those on the legs being very much longer. A specimen from Bugaba is figured.

2. **Leogorrus litura.** (Tab. XII. fig. 7, ♀.)

Reduvius litura, Fabr. Mant. Ins. ii. p. 310 (1787) [1]; Ent. Syst. iv. p. 199 [2]; Syst. Rhyng. p. 272 [3].
Leogorrus litura, Stål, Hemipt. Fabr. i. p. 126 [4]; Enum. Hemipt. ii. p. 118 [5].
Acanthaspis litura, Walk. Cat. Hemipt. Heteropt. vii. p. 167 [6].
Cimex cayennensis, Gmel. Syst. Nat. i. 4, p. 2198 (1788) [7].
Platymeris myrmecodes, Herr.-Schäff. Wanz. Ins. viii. p. 32, t. 260. fig. 807 (1848) [8].
Reduvius (*Platymerus*) *myrmecodes,* Guér. in Sagra's Hist. fis. polit. y nat. de Cuba, Ins. p. 171 [9].
Reduvius signifer, Walk. Cat. Hemipt. Heteropt. vii. p. 182 [10].
Reduvius partitus, Walk. loc. cit. p. 183 [11].

Hab. MEXICO [6] (*Mus. Holm.* [4 5]; *Bilimek, in Mus. Vind. Cæs.*), Milpas in Durango, Presidio de Mazatlan (*Forrer*), Atoyac in Vera Cruz (*Schumann*), Jalapa (*Höge*), San Lorenzo near Cordova, Chiapas (*M. Trujillo*), Oaxaca (*Sallé, in Mus. Brit.* [10]), Temax in N. Yucatan (*Gaumer*); GUATEMALA, Lanquin, Panzos, and Teleman in Vera Paz, Paraiso, Las Mercedes, El Reposo, San Isidro, Pantaleon, Mirandilla (*Champion*), Escuintla (*Mus. Vind. Cæs.*); HONDURAS, Ruatan I. (*Gaumer*); PANAMA, Bugaba (*Champion*).—COLOMBIA [5 10]; VENEZUELA [10]; GUIANA, Cayenne [1 2 3 4 6 7]; AMAZONS [11]; BRAZIL [6], Rio Janeiro [4 5], Minas Geraes [5]; ANTILLES, Cuba [5 8 9], San Domingo [10].

This is one of the commonest Reduviids in the "tierra caliente" of Tropical America, ranging as far north as Durango. *L. litura* is recognizable amongst its allies by the comparatively large and prominent eyes and short head, the lateral post-ocular portions of the head not longer than the eyes. The nervures of the membrane are almost entirely ochreous, and also bordered with that colour. The two specimens from Ruatan Island are much discoloured, but they certainly belong here. An example from Bugaba is figured.

3. **Leogorrus venator.** (Tab. XII. fig. 9, ♀.)

Leogorrus venator, Stål, Stett. ent. Zeit. 1862, p. 456[1]; Enum. Hemipt. ii. p. 119[2].

Hab. Mexico [1 2] (*Sallé; Heller, in Mus. Vind. Cæs.*), Milpas in Durango (*Forrer*), Atoyac in Vera Cruz (*H. H. Smith*), Jalapa (*Höge*), Temax in N. Yucatan (*Gaumer*), Chiapas (*M. Trujillo*); Guatemala, Teleman in Vera Paz (*Champion*).

This species, one of the types of which is before me, is very like *L. litura*, but differs from it in having the eyes smaller and less prominent; the lateral post-ocular portions of the head a little longer than the eyes; the membrane fuscous, with a triangular ochreous patch on the outer margin adjoining the similarly coloured apex of the corium, the nervures entirely dark; the pronotum and legs clothed with longer hairs. The venter, as in *L. litura*, is sharply carinate almost to the apex. The seven specimens from Yucatan have the body rufo-castaneous, and the legs and antennæ rufo-testaceous, probably due to immaturity; they are extremely like the Brazilian *L. pallipes*, Stål (a type of which is before me), which, however, has a smaller and less elongate head, and a more sparsely pilose pronotum. A specimen from Teleman is figured.

4. **Leogorrus longiceps,** n. sp. (Tab. XII. fig. 10, ♀.)

Moderately elongate, nigro-piceous or black, the covered dorsal portion of the abdomen obscure ferruginous, the elytra with a small patch below the base—extending over the apical half of the clavus, the extreme base of the membrane, and the adjoining inner portion of the corium,—a small, subtriangular, posteriorly excised patch on the outer portion of the membrane, and the apex of the corium broadly, ochreous, the latter fulvous in some specimens; the second joint of the antennæ and the tarsi sometimes fulvous; the body, legs, and antennæ clothed with very long, fine, fulvous hairs, the tibiæ densely clothed with fulvous hairs on the inner side towards the apex. Head comparatively elongate, very much longer than the anterior lobe of the pronotum, the lateral post-ocular portions considerably longer than the eyes, the eyes not prominent and rather small. Pronotum with the two lobes subequal in length, almost smooth, deeply sulcate down the middle, the transverse median sulcus interrupted on each side of the central groove, the anterior lobe shallowly obliquely sulcate on each side of the disc, the anterior angles rather prominent. Scutellar process short, curved upwards at the tip. Abdomen not extending beyond the apex of the elytra in the male. Venter sharply carinate at the base, the carina gradually becoming evanescent towards the apex.

Length $12\frac{1}{2}$–$13\frac{4}{5}$, breadth $4\frac{1}{2}$–5 millim. (♂ ♀.)

Hab. Mexico, Orizaba (*Bilimek, in Mus. Vind. Cæs.*); Guatemala, El Reposo, Volcan de Atitlan (*Champion*).

Six specimens, four of which are from Guatemala. Very like *L. venator*, Stål, with which it was confused in the Vienna Museum collection; but differing from that species in having a smaller ochreous patch on the basal portion of the elytra and in the more elongate head, the post-ocular portions of the latter being much longer than the eyes. It is also a little larger and more elongate. In fresh specimens the connexival segments have each a patch of pallid appressed pubescence. *L. (Reduvius) xanthospilus*, Walk., from Ega, is an allied form; it has the ochreous post-basal patch reduced to a spot on the corium, the apex of the latter black, &c. A specimen from El Reposo is figured.

5. **Leogorrus interruptus,** n. sp. (Tab. XII. fig. 12, ♂.)

Moderately elongate, black or nigro-piceous, the elytra with several spots below the base—one on the clavus, one on the corium, and two or three on the base of the membrane,—a patch on the apical portion of the corium before the tip, and a subtriangular, posteriorly-excised mark on the membrane connected with it, ochreous; the tarsi sometimes fulvous; the body, legs, and antennæ sparsely clothed with long, fine hairs, the tibiæ thickly clothed with fulvous hairs on the inner side towards the apex. Head moderately long, the post-ocular portion convex and slightly longer than the eyes, the latter rather prominent. Pronotum as in *L. longiceps*. Scutellar process slightly curved upwards at the tip. Venter sharply carinate almost to the apex, the first three sutures with a row of coarse punctures.

Length $11\frac{1}{3}$–13, breadth $4\frac{1}{5}$–$4\frac{1}{2}$ millim. (♂ ♀.)

Hab. PANAMA (*Boucard*), David (*Champion*).

Three specimens, two of which are in a bad state of preservation. Very like *L. venator*, but with the eyes a little larger and more prominent (approaching *L. litura* in this respect, but with the post-ocular portion of the head longer), the tip of the corium black, the ochreous patch at the base of the membrane divided up into spots.

6. **Leogorrus fasciatus,** n. sp. (Tab. XII. fig. 13, ♂.)

Moderately elongate, broad, nigro-piceous or black, the elytra with a common, broad, strongly angulated, transverse ochreous fascia below the base—the ochreous coloration extending over the apical half of the clavus, the inner and outer portions of the corium to the tip, and the basal and outer portions of the membrane,—the membrane in great part fuscous, with the apex narrowly pale; the tarsi, the second joint of the antennæ, and the intermediate and hind tibiæ at the apex, more or less fulvous; the body, legs, and antennæ somewhat thickly, the venter sparsely, clothed with very long, fine, fulvous hairs, the tibiæ densely clothed with fulvous hairs on the inner side towards the apex. Head moderately elongate, very much longer than the anterior lobe of the pronotum, the lateral post-ocular portions considerably longer than the eyes, the eyes not prominent and rather small. Pronotum with the two lobes subequal in length, almost smooth, deeply sulcate down the middle, the transverse median sulcus interrupted on each side of the central groove, the anterior lobe distinctly obliquely sulcate on each side of the disc, the anterior angles rather prominent. Scutellar process short, compressed, subhorizontal. Abdomen broad, extending beyond the elytra in both sexes, rounded at the sides. Venter sharply carinate at the base, the carina gradually becoming evanescent towards the apex, the sutures smooth.

Length, ♂ $13\frac{1}{2}$, ♀ $15\frac{3}{4}$, breadth $5\frac{1}{2}$ millim. (♂ ♀.)

Hab. GUATEMALA, San Gerónimo in Vera Paz (*Champion*).

One pair. Closely allied to *L. picturatus*, Stål (=*Reduvius signatus*, Walk., and *Pirates megaspilus*, Walk.), from Colombia, but with the ochreous colour less extended over the base of the membrane and forming a broad, common, strongly angulated fascia; the present species is also larger, more elongate, and more hairy, and has a longer head, less prominent eyes, &c. Stål's type has been seen.

7. **Leogorrus immaculatus,** n. sp.

♂. Dull nigro-piceous above, paler beneath, the connexivum and venter obscure ferruginous; the legs piceous, with the tarsi fulvous, the antennæ with the second joint fulvous; the body, legs, and antennæ very sparsely clothed with long hairs, those on the head and pronotum shorter and erect. Head smooth, narrow, the post-ocular portion convex and about twice as long as the eyes, the latter small. Pronotum almost smooth, the oblique sulci on the anterior lobe very shallow; the transverse median sulcus, and also the longitudinal one, very deep. Elytra reaching the apex of the abdomen, immaculate.

Length $9\frac{1}{2}$–10, breadth $3\frac{1}{3}$–$3\frac{1}{2}$ millim.

Hab. GUATEMALA, El Reposo (*Champion*).

Two specimens, from the Pacific coast-region. Easily distinguishable from all its allies by the immaculate elytra, and the narrow, elongate head, with unusually small eyes. *L. immaculatus* approaches *L. longiceps*, *L. venator*, &c., but it is less elongate and has smaller eyes.

SPINIGER.

Spiniger, Burmeister, Handb. der Ent. ii. p. 234 (1835); Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 334; Stål, Enum. Hemipt. ii. pp. 109, 113.
Acrocoris, Hahn, Wanz. Ins. iii. p. 22 (1835).
Acidoparius, Stål, loc. cit. p. 113.
Micracidius, Stål, loc. cit. p. 114.
Opisthacidius, Berg, Hemipt. Argent. p. 172 (1879).
Pantopsilus, Berg, loc. cit.

This genus includes about sixty known species, all of which inhabit South America *, four only of these entering within our limits, whence one is now added. Stål groups the species under five divisions (using subgeneric names for four of them), two of which are not represented in Central America. Our five species may be separated thus:—

a. Jugæ not raised; anterior and intermediate femora not strongly incrassate.
  a'. Pronotum with two long erect spines on the disc of the anterior lobe and a long spine at the hind angles; the scutellum with a long erect spine.
    a''. Anterior lobe of the pronotum with a small tubercle on each side; anterior and intermediate femora unarmed . . . . . *spinidorsis*, Gray.
    b''. Anterior lobe of the pronotum unarmed at the sides; anterior and intermediate femora with a few very short spines . . . . *formosus*, Stål.
  b'. Pronotum with two erect spines on the disc and a short spine at the sides of the anterior lobe, and the hind angles acutely dilated; the scutellum with a semi-erect spine; anterior and intermediate femora unarmed . . . . . *limbatus*, Lep. et Serv.
  c'. Pronotum with the anterior lobe unarmed, the hind angles obtusely dilated; scutellum with a semi-erect spine; anterior and intermediate femora unarmed . . . . . *superbus*, n. sp.
b. Jugæ raised and tuberculiform; anterior and intermediate femora strongly incrassate and closely armed with very short spines beneath; pronotum with four tubercles on the disc and one on each side of the anterior lobe, the hind angles acute . . . . . *rubropictus*, H.-S.

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* *Spiniger naboides*, Walk., from the Amazons = *Vescia spicula*, Stål.

1. Spiniger spinidorsis.

La Punaise mouche, à épines et longues pattes, Stoll, Représ. des Punaises, p. 71, t. 17. fig. 121 (1788)[1].

Reduvius spinidorsis, Gray, in Griffith's Anim. Kingd., Ins. ii. p. 244, t. 91. fig. 1 (1832)[2]; Stål, Stett. ent. Zeit. 1859, p. 403[3].

Spiniger spinidorsis, Stål, Enum. Hemipt. ii. p. 113[4].

Spiniger flavispinus, Stål, Stett. ent. Zeit. 1859, p. 400[5]; Berl. ent. Zeitschr. 1869, p. 232[6].

Spiniger flavipennis, Mayr, Verh. zool.-bot. Ges. Wien, xv. p. 439 (1865)[7].

Hab. Mexico, Temax in N. Yucatan (*Gaumer*); Nicaragua, Chontales (*Belt*); Panama, Bugaba, Volcan de Chiriqui (*Champion*).—Colombia[4]; Guiana, Surinam[1], Demerara[2 3]; Brazil[7].

Of this remarkable insect we possess five specimens from within our limits, three of which were found in Chiriqui. It bears an extraordinary resemblance to some of the large species of the Hymenopterous genus *Pepsis*, these insects, like the *Spiniger*, frequenting decaying trees in forest-clearings. The second joint of the antennæ is fulvous, with the apex narrowly black; the elytra are fulvous, with the base black; the pronotal and scutellar spines are ochreous, with the base more or less black. The type of *S. flavispinus* was from an unknown locality.

2. Spiniger formosus. (Tab. XII. figg. 14, ♂, var.; 15, 15 *a*, ♀, var.)

Spiniger formosus, Stål, Enum. Hemipt. ii. p. 116 (♂)[1].

Hab. Colombia, Bogota[1].

Var. *α*. The head more or less ochreous in front; the transverse fascia on the posterior lobe of the pronotum extending completely across; the scutellar and pronotal spines black, the latter sometimes ochreous or reddish at the base; the legs black, the anterior and intermediate femora beneath and the posterior femora at the base sometimes flavescent; the abdomen ochreous, sometimes with the apex broadly black; the transverse flavescent mark before the apex of the corium larger and extending inwards, in some specimens continued across the base of the membrane so as to form a common fascia; the curved transverse flavescent fascia towards the apex of the membrane usually well-defined. (♂ ♀.)

Hab. Guatemala, Senahu, San Juan, Panima, and Sinanja in Vera Paz, Zapote (*Champion*); Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Var. *β*. The head and the scutellar and pronotal spines black; the transverse fascia on the posterior lobe of the pronotum reduced to a broad patch on the disc; the transverse fascia near the apex of the corium moderately large; the curved fascia on the membrane not very distinct. (♀.)

Hab. Nicaragua, Chontales (*Janson*); Panama (*Boucard*).

The var. *α* has been found in plenty in Guatemala and Chiriqui; of the var. *β* two specimens only, females, have been seen. In the type, which is now before me, the scutellar and pronotal spines, and the legs, the posterior tibiæ and tarsi excepted, are flavescent, and the transverse fascia on the corium is reduced to a small spot. The legs vary in colour, about half our specimens having the anterior and intermediate femora black on the upperside only. We figure a male of the var. *α* from Chiriqui, and a female of the var. *β* from Panama.

3. **Spiniger limbatus.**

Reduvius limbatus, Lep. et Serv. Encycl. Méth. x. p. 275 (1825)[1]; Blanch. Hist. Ins. iii. p. 104[2].
Spiniger limbatus, Burm. Handb. der Ent. ii. p. 234[3]; Hahn, Wanz. Ins. iii. p. 23[4]; Amyot et Serv. Hist. Nat. Ins. Hémipt. p. 335[5]; Stål, Stett. ent. Zeit. 1859, p. 398[6], and 1862, p. 456[7]; Berl. ent. Zeitschr. 1869, p. 233[8]; Enum. Hemipt. ii. p. 115[9]; Walk. Cat. Hemipt. Heteropt. vii. p. 154[10].
Acrocoris circumcinctus, Hahn, Wanz. Ins. iii. p. 22, t. 80. fig. 246[11].

Hab. MEXICO[7 9 10], Vera Cruz (*Sallé, in Mus. Holm.*); GUATEMALA, Teleman in Vera Paz (*Champion*); PANAMA (*Boucard*), Volcan de Chiriqui 3000 feet (*Champion*).—AMAZONS, Pará[10]; BRAZIL[1 5 9], Bahia[4 6], Rio Janeiro[4 10].

Found in numbers on the slope of the Volcan de Chiriqui, and singly at Teleman in the Polochic valley. In all the Central-American specimens the pronotum is ochraceous, with a black transverse fascia or a line of spots on the disc of the posterior lobe in front, and a transverse row of black spots on the anterior lobe behind; the two long spines on the disc of the anterior lobe are constantly black. Stål's Mexican specimens have been examined.

4. **Spiniger superbus,** n. sp. (Tab. XII. figg. 17, 17 *a*, ♀.)

♀. Elongate, robust, opaque above, the legs and under surface moderately shining; sanguineous, fading to ochreous, the posterior lobe of the pronotum with two very broad black vittæ on the disc, not reaching the base, and an oblique black patch on each side in front; the scutellum black in the middle in front; the elytra black, with a very large triangular ochreous patch a little before the apex of the corium, extending narrowly along the costa to the base and inwards to the base of the membrane; the connexival segments each with a black patch at the outer apical angles; the antennæ, and the apical joints of the rostrum in great part, black; the legs black, with the base of the hind femora very narrowly, and that of the other femora broadly, sanguineous, the tarsi fuscous; the body and legs sparsely clothed with long hairs, the antennæ finely pubescent, with longer hairs intermixed. Head oblong, the jugæ not raised, the genæ obtuse at the apex, the eyes very large, the ocelli large and prominent; antennæ moderately elongate, joint 1 short, about reaching the ocelli, and less than one-fourth the length of 2. Pronotum almost smooth, strongly constricted at the sides before the middle; the anterior lobe short, one-half the length and about one-half the width of the posterior lobe, unarmed, shallowly and obliquely bisulcate on each side of the disc; the anterior angles stout, obliquely prominent, obtuse at the tip; the transverse median sulcus widened out into a deep fovea in the centre; the posterior lobe strongly dilated, the hind angles obtuse and raised, the basal margin reflexed. Scutellum produced into a long semierect spine. Elytra extending to beyond the abdomen. Legs elongate, rather stout; femora unarmed; anterior and intermediate tibiæ with a very elongate fossa beneath, extending to the middle; posterior tarsi with joint 3 a little longer than 2. Ventral segments 2–4 sharply carinate.

Length 31; breadth of the abdomen 9, of the pronotum nearly 8 millim.

Hab. GUATEMALA, Sinanja in Vera Paz (*Champion*).

One example, from a tributary valley of the Polochic. This fine species does not fit into any of the sections of the genus noticed by Stål.

5. **Spiniger rubropictus.** (Tab. XII. figg. 16, 16 *a*, ♀.)

Platymeris rubropicta, Herr.-Schäff. Wanz. Ins. viii. p. 31, t. 260. figg. 806 (♀)[1].
Spiniger rubropictus, Stål, Berl. ent. Zeitschr. 1869, p. 235[2]; Enum. Hemipt. ii. p. 117[3].

Hab. NICARAGUA, Chontales (*Janson*).—GUIANA, Cayenne [3]; BRAZIL [1].

One female. This specimen nearly agrees with Herrich-Schäffer's figure: the pronotum has four red tubercles on the disc of the anterior lobe, as well as a lateral tubercle on each side, and there are two similarly coloured oblique ridges on the disc of the posterior lobe. The jugæ are bright red and tuberculiform. The anterior and intermediate femora are asperate beneath and strongly incrassate. The venter is sharply carinate almost to the apex. The apical joint of the hind tarsi is as long as the two others united.

MACROPHTHALMUS.

Macrophthalmus, Laporte, Essai d'une class. syst. Hémipt. in Guérin's Mag. Zool. 1832, p. 11; Stål, Enum. Hemipt. ii. pp. 109, 113.

Macrops, Burmeister, Handb. der Ent. ii. p. 232 (1835); Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 347; Stål, Hemipt. Afr. iii. p. 121.

A well-marked Tropical-American genus, containing three closely allied species, two of which are common to Central and South America. The name *Macrophthalmus* was changed by Burmeister to *Macrops*, on account of its being preoccupied in Crustacea (Latreille, 1829), he being unaware of the fact that *Macrops* had been used in Reptilia (Wagler, 1830); the genus, therefore, still requires a new name. Both *Macrophthalmus* and *Macrops* have been subsequently used in Coleoptera. These insects live under the bark of decaying trees, in forest-clearings, and prey upon freshly emerged Coleoptera &c. Our two species may be separated thus:—

Frontal tubercles (jugæ) very prominent, oblique, and subconical, the tubercles more or less uniting at the base and together forming a broad bifurcate elevation; corium with a black Λ-shaped mark before the apex: body elongate . . . . . *histrionicus*, Stål.

Frontal tubercles not prominent; corium with a narrow sinuous transverse black fascia before the apex: body rather short . . . . . *pallens*, Lap.

1. **Macrophthalmus histrionicus.** (Tab. XII. figg. 18, 18 *a*, ♀.)

Macrops histrionicus, Stål, Stett. ent. Zeit. 1862, p. 456 [1].

Macrophthalmus histrionicus, Stål, Enum. Hemipt. ii. p. 113 [2].

Hab. MEXICO [1] (*Mus. Brit.*), Vera Cruz [2]; NICARAGUA, Chontales (*Janson*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).—COLOMBIA, Bogota [2].

I have seen twenty examples of this species (including one of the Mexican types), all but two of them being from Chiriqui. This insect is larger and more elongate than *M. pallens*, and easily separable therefrom by the prominent horn-like frontal tubercles and the differently marked corium. In some specimens the frontal tubercles are longer than in others, this being especially noticeable in the Panama examples. A specimen from the Volcan de Chiriqui is figured.

2. **Macrophthalmus pallens.** (Tab. XII. fig. 19, larva, in profile.)

Macrophthalmus pallens, Lap. Essai d'une class. syst. Hémipt. in Guérin's Mag. Zool. 1832, p. 11[1]; Stål, Enum. Hemipt. ii. p. 113[2].

Macrops pallens, Burm. Handb. der Ent. ii. p. 233[3]; Amyot et Serv. Hist. Nat. Ins. Hémipt. p. 348[4]; Herr.-Schäff. Wanz. Ins. viii. p. 68, t. 270. fig. 836[5]; Walk. Cat. Hemipt. Heteropt. viii. p. 11[6].

Hab. Mexico, Orizaba, Oaxaca (*Sallé, in Mus. Brit.*), Atoyac in Vera Cruz (*H. H. Smith*), Chiapas (*M. Trujillo*); British Honduras, R. Sarstoon (*Blancaneaux*); Guatemala, San Gerónimo, Tamahu, and Teleman in Vera Paz, El Reposo, Las Mercedes (*Champion*); Panama, Bugaba, Tolé (*Champion*). — South America[5], Colombia[2 6], Venezuela[6], Guiana[4 6], Amazons[6], Brazil[1 2 3].

An abundant insect in the forest-clearings of the "tierra caliente" of Chiriqui. The larva of this species has on the disc of the pronotum two very long spines, which are erect to near the middle and then curved forwards (fig. 19); a specimen was found at Teleman with the fully-developed form.

CONORRHINUS.

Conorhinus, Laporte, Essai d'une class. syst. Hémipt. in Guérin's Mag. Zool. 1832, p. 78; Burmeister, Handb. der Ent. ii. p. 245 (part.); Stål, Berl. ent. Zeitschr. 1859, p. 106; Hemipt. Afr. iii. p. 120; Hemipt. Fabr. i. p. 123; Enum. Hemipt. ii. pp. 108, 111 (nec Schönherr, 1836).

Triatoma, Laporte, loc. cit. p. 11.

A genus containing about twenty known species *, spread over the warmer parts of both hemispheres. They are of large size, and some of them are stated to attack man, the "great black bug" or "benchuca" of the pampas, mentioned by Darwin in his 'Journal of the Voyage of the Beagle,' p. 403 (1839), being the larval or pupal form of a *Conorrhinus*. Prof. Uhler (Bull. U.S. Geol. & Geogr. Surv. i. p. 331) notes the extended range of *C. sanguisugus*, Lec., and describes it as a blood-thirsty tenant of beds in houses. *C. dimidiatus* has been seen by myself in Guatemala in suspicious proximity to beds, though it was not actually observed in the act of blood-sucking. The genera *Meccus*, *Lamus*, and *Rhodnius*, Stål, include closely allied forms, the last-mentioned not being represented within our limits †.

1. **Conorrhinus dimidiatus.** (Tab. XII. figg. 20, ♂; 21, ♀, var. *maculipennis.*)

Reduvius dimidiatus, Latr., in Humb. et Bonpl. Obs. Zool. i. p. 149, t. 15. fig. 11 (1811)[1].

Conorhinus dimidiatus, Stål, Berl. ent. Zeitschr. 1859, p. 110, t. 6. fig. 2 (head)[2]; Hemipt. Fabr. i. p. 124[3]; Enum. Hemipt. ii. p. 111[4]; Walk. Cat. Hemipt. Heteropt. viii. p. 16[5].

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* The South-American *C. lignarius* and *C. porrigens*, Walk., would perhaps be best placed in *Lamus*, Stål.

† One of the two specimens included under *C. limosus* by Walker (the one from Archidona) = *Rhodnius prolixus*, Stål.

Hab. MEXICO [4] (*Mus. Vind. Cæs.*), Oaxaca (*Sallé, in Mus. Brit.*[5]), Teapa in Tabasco (*H. H. Smith*), Temax and Valladolid in Yucatan (*Gaumer*); GUATEMALA (*Mus. Vind. Cæs.*), Cerro Zunil, Zapote (*Champion*); HONDURAS (*Dyson, in Mus. Brit.*[5]); NICARAGUA (*Mus. Vind. Cæs.*), Chontales (*Janson*); COSTA RICA [2 4] (*Van Patten*), Irazu (*Rogers*); PANAMA, Veraguas [2].—ECUADOR, Guayaquil [4]; PERU [1].

Var. *α*. The black or piceous discoidal spot on the corium large, in some specimens nearly reaching the costal margin. (♂ ♀.) (Fig. 21.)

Conorhinus maculipennis, Stål, Berl. ent. Zeitschr. 1859, p. 111[6]; Hemipt. Fabr. i. 124[7]; Enum. Hemipt. ii. p. 111[8].

Hab. MEXICO [6 8] (*Mus. Vind. Cæs.*), Cuesta de Misantla (*M. Trujillo*), Temax in Yucatan (*Gaumer*).

Var. *β*. The corium piceous, with the outer margin towards the base and a patch along the middle of the apical margin ochraceous. (♀.)

Hab. MEXICO, Temax in Yucatan (*Gaumer*).

In the typical form of this species the elytra have a very small black spot on the disc of the corium, this being sometimes quite obsolete. The variety *maculipennis*, Stål, has the discal spot much larger, often forming a broad more or less interrupted transverse fascia. The variety *β*, of which a single specimen only has been received, has the corium dark, with the exception of the outer margin at the base and a space along the middle of the apical margin; this form is very like *C. infestans* (Klug) (=*renggeri*, H.-S.)*, which has a stout, thickly pilose rostrum, with the first and third joints nearly equal in length, the produced anterior portion of the head broader and with the sides straighter, the connexivum black at the apex in both sexes, &c. In all the varieties of *C. dimidiatus* the base of the clavus and the apex of the corium are infuscate or black. The insect varies greatly in size, this being especially noticeable in the females, the elytra in the largest of these not reaching as far as the apex of the sixth segment and the connexivum being very broad. The single specimen seen from Honduras, a female, is much longer than any of those received by us. We figure a male of the typical form and a female of the var. *maculipennis*, Stål, both from Yucatan.

2. Conorrhinus sanguisugus.

Conorhinus sanguisuga, Lec. Proc. Acad. Phil. vii. p. 404 (1855)[1].

Conorhinus sanguisugus, Stål, Enum. Hemipt. ii. p. 111[2]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 331[3].

Conorhinus lateralis, Stål, Berl. ent. Zeitschr. 1859, p. 107[4].

Hab. NORTH AMERICA, Maryland [3], Illinois [3], Ohio [3], Virginia [3], Georgia [1 2 4], Florida [3], Texas [2 3].—PANAMA [3].

* In the Signoret collection in the Vienna Museum there are two specimens of this species labelled as from "Mexico"; the locality, however, requires confirmation, the insect being only recorded from Chili, Paraguay, and the Argentine Republic.

3. **Conorrhinus rubrofasciatus.** (Tab. XII. fig. 22, ♀, var.)

Cimex rubrofasciatus, DeGeer, Mém. des Ins. iii. p. 349, t. 35. fig. 12 (1773) [1].

Conorhinus rubrofasciatus, Amyot et Serv. Hist. Nat. Ins. Hémipt. p. 384, t. 8. figg. 2, 2 *a* [2]; Stål, Berl. ent. Zeitschr. 1859, p. 106 [3]; Hemipt. Afr. iii. p. 142 [4]; Hemipt. Fabr. i. p. 123 [5]; Enum. Hemipt. ii. p. 111 [6], iv. p. 67 [7]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 331 [8].

Reduvius gigas, Fabr. Syst. Ent. p. 729 (1775) [9]; Syst. Rhyng. p. 267 [10]; Wolff, Icon. Cimic. iii. p. 119, t. 12. fig. 113 [11].

Cimex gigas, Gmel. Syst. Nat. i. 4, p. 2195 [12].

Conorhinus gigas, Burm. Handb. der Ent. ii. p. 246 [13]; Herr.-Schäff. Wanz. Ins. viii. p. 72, t. 272. figg. 841, 842 [14].

Cimex erythrozonias, Gmel. Syst. Nat. i. 4, p. 2181 (1788) [15].

Conorhinus stålii, Sign. Ann. Soc. Ent. Fr. 1860, p. 967 [16].

La Punaise-Mouche de Surinam, Stoll, Représ. des Punaises, p. 55, t. 13. fig. 85 (1788) [17].

♀. Moderately elongate, opaque, the body almost glabrous; nigro-fuscous, a broad space along the middle of the venter, the covered portion of the dorsal surface of the abdomen, the hind angles of the pronotum, the outer margin of the corium to about one-third from the base and a small indistinct spot at the middle of its apical margin, brownish-ochreous; the connexival segments 1–5 each with a narrow transverse ochreous or reddish-ochreous fascia at the apex; the femora brownish at the base; the membrane dilute fuscous. Head transversely rugulose, with the produced apical portion parallel, stout, and a little longer than the antenniferous processes, which are as long as the large and moderately prominent eyes, the post-ocular portion short, the ocelli prominent; antennæ pilose, joints 3 and 4 with long projecting hairs intermixed, 2 about three and one-half times longer than 1, 1 reaching as far as the apex of the head; rostrum stout, joint 1 a little longer than 3, 3 and the apex of 2 thickly pilose. Pronotum very dull and transversely rugulose; the anterior lobe sulcate down the middle, and without trace of lateral or discal tubercles; the anterior angles obtusely dentiform, short; the posterior lobe with two anteriorly converging carinæ on the disc in front; the hind angles obtuse. Scutellar process horizontal, moderately long. Elytra reaching the apex of the sixth segment. Connexival margin moderately broad. Anterior and intermediate femora each with four very short teeth beneath before the apex—two on the anterior and two on the posterior edge.

Length 20–23, breadth 5–7 millim.

Hab. North America, Kansas [8], Texas [8], California [8].—Mexico [8], Presidio de Mazatlan (*Forrer*).—South America [13], Guiana [17], Brazil [2 3 4]; Antilles, Haiti [3].—Bourbon [4]; Ceylon [3]; India [3 4 7 9 10 11 13]; China [4 7]; Africa, Sierra Leone [3 4 13]; Madagascar [4 7 16]; Philippine Is. [7], &c.

It is by no means certain that the insects from all these widely separated localities really belong to one and the same species, and a description and figure of the Mexican insect are therefore given, taken from the three females received from Forrer. Prof. Uhler states [8] that the Mexican and Californian examples have the anterior angles of the pronotum less produced, and that those from California (like ours) are sometimes almost uniformly rusty-black. In the typical *C. rubrofasciatus* the pronotum has the lateral margins entirely pale and the anterior angles strongly produced, and the elytra have a reddish vitta on the clavus and a similarly-coloured mark at the apex of the corium.

4. **Conorrhinus venosus.** (Tab. XII. fig. 23, ♀.)

Conorhinus venosus, Stål, Enum. Hemipt. ii. p. 111 (♀) (1872) [1].

Hab. PANAMA (*Boucard*), Volcan de Chiriqui (*Champion*).—COLOMBIA, Bogota [1].

Two females. They differ from the type, now before me, in having the anterior angles of the pronotum much more produced (instead of short, as in the type), and the connexival segments maculate at the sides, as well as at the base. The upper surface, the membrane excepted, is sparsely clothed (like the venter) with short, decumbent, ochreous hairs. The whole of the nervures of the elytra, the margins of the pronotum and several lines or vittæ on the disc, and three longitudinal lines on the head, are of a sordid or reddish-ochreous colour; the two irregular transverse reddish-ochreous marks on each of the connexival segments are in one specimen united, so as to enclose a marginal black spot, but in the other they are completely separated.

MECCUS.

Meccus, Stål, Berl. ent. Zeitschr. iii. p. 105 (1859); Hemipt. Fabr. i. p. 123; Enum. Hemipt. ii. pp. 108, 110.

The three species of this genus are amongst the largest of the known Reduviids, and all of them are from Mexico. *Meccus* is scarcely separable from *Conorrhinus*, merely differing from it in the rather longer post-ocular portion of the head (exclusive of the neck), and the more prominent tubercles on the anterior lobe of the pronotum. The females (the only sex known to Stål when he described the genus) appear to be more thickly pilose, and more rugose, than the males, and to have the elytra relatively shorter than in *Conorrhinus*, extending to about the apex of the fifth segment.

a. Hind angles of the pronotum obtuse.
  a'. Corium with the base broadly and an ante-apical fascia ochreous, the membrane and the apical half of the clavus fuscous . . . . . *phyllosoma,* Burm.
  b'. Corium, except at the apex and at the base of the outer margin, the apical half of the clavus, and the basal margin of the membrane, dirty white . *pallidipennis,* Stål.
b. Hind angles of the pronotum acute; corium with the base, an ante-apical fascia, and the outer margin to beyond the middle, ochreous . . . . *mexicanus,* H.-S.

1. **Meccus phyllosoma.** (Tab. XII. figg. 25, ♂; 26, larva.)

Conorhinus phyllosoma, Burm. Handb. der Ent. ii. p. 246 (♀) (1835) [1]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 330 [2]; Walk. Cat. Hemipt. Heteropt. viii. p. 14 [3] (nec Herr.-Schäff.).

Meccus phyllosoma, Stål, Berl. ent. Zeitschr. 1859, p. 105 (♀) [4]; Enum. Hemipt. ii. p. 110 [5].

Hab. NORTH AMERICA, California [2].—MEXICO [1 2 4 5] (*Mus. Brit.* [3]: ♂ ♀), Presidio de Mazatlan, Ventanas in Durango (*Forrer*: ♂ ♀).

Of this species, which appears to be confined to N.W. Mexico and California, we have received six mature specimens, including both sexes, and two larvæ. The two

females seen appear to have the head, pronotum, and under surface more thickly pilose than the males, the pronotum more rugose, more constricted at the sides, and with the anterior lobe somewhat gibbous. Prof. Uhler records [2], from California, a black variety, with the outer edge only of the abdomen red. The larva has the tarsi 2-jointed. We figure a male and a larva, both from Ventanas.

2. **Meccus pallidipennis.** (Tab. XII. figg. 24, 24 *a*, ♀.)

Meccus pallidipennis, Stål, Enum. Hemipt. ii. p. 110 (♂) (1872) [1].

Hab. Mexico [1] (*Mus. Holm.* [1]: ♂; *Mus. Brit.*: ♀), Chilpancingo in Guerrero 4600 feet (*H. H. Smith*: ♀).

Of this fine species we have received a female example from Western Mexico; it measures 35 millim. in length, and 16½ millim. in breadth, and is therefore much larger than Stål's type (length 30, breadth 13½ millim.). The coloration of the elytra is very like that of *Hammatocerus purcis* (Drury) and *H. luctuosus*, Stål, the base being very broadly banded with whitish.

3. **Meccus mexicanus.**

Conorhinus mexicanus, Herr.-Schäff. Wanz. Ins. viii. p. 71, t. 271. figg. 839 (♂), 840 (♀) (1848) [1].

Meccus mexicanus, Stål, Berl. ent. Zeitschr. 1859, p. 105 [2]; Enum. Hemipt. ii. p. 110 [3].

Hab. Mexico [1–3].

This species, which appears to have been known to Stål from description only, is evidently a close ally of *M. phyllosoma*, but differs from it in having the hind angles of the pronotum acute and the outer margins of the corium ochreous. We have received a larva of a *Meccus* from Yucatan (*Gaumer*) which may belong to it.

LAMUS.

Lamus, Stål, Berl. ent. Zeitschr. iii. p. 115 (1859); Hemipt. Fabr. i. p. 123; Enum. Hemipt. ii. pp. 109, 112.

The two Tropical South-American species referred to this genus by Stål differ from *Conorrhinus* in having the antennæ inserted very near the eyes (the portion of the head in front of this point being three or four times as long as the antenniferous processes). The Central-American species now added is intermediate in this respect, as are *Conorrhinus lignarius*, Walk., and *C. porrigens*, Walk., which are nearly allied congeneric forms.

1. **Lamus rufotuberculatus,** n. sp. (Tab. XII. figg. 27, 27 *a*, ♂.)

♂. Elongate, opaque above, black, sparsely clothed with very short decumbent pallid hairs; the head with the raised central portion of the anterior lobe, the sides of the posterior lobe, and a Y-shaped mark on its disc, rufo-ferruginous; the pronotum with the anterior angles, and the tubercles and several sinuous lines on the disc of the anterior lobe, bright red, and the hind angles, a spot on each side of the disc near them, a short longitudinal mark in the centre at the base, and two patches on the disc of the posterior lobe in

front (including the carinæ), obscure reddish-ochreous; the scutellum with the two carinæ and the apical process rufous; the elytra sordid ochreous, the corium with the apical nervure, a spot near the base, and two narrow, partly connected, angulated fasciæ black, the membrane with the entire inner half much mottled with fuscous, and with a large similarly coloured patch at the base of the outer discal area; the connexivum reddish-ochreous, each segment with the basal margin and a subquadrate median lateral patch black; the basal joint of the antennæ ferruginous above; the femora each with a narrow annulus at the apex, and the upperside more or less to near the tip, rufo-ferruginous; the legs and antennæ pilose, the three outer joints of the latter also with long fine projecting hairs. Head much shorter than the pronotum, the anterior lobe stout, parallel, and a little shorter than the posterior lobe, the antenniferous processes short, about half the length of the very large and prominent eyes, the post-ocular portion very short, the ocelli large and prominent; antennæ with joint 1 about reaching the tip of the apical process of the head, 2 more than three times longer than 1, 3 and 4 decreasing in length; rostrum with the apical third pilose, joint 3 much shorter than 1. Pronotum hexagonal, deeply sulcate down the middle anteriorly; the anterior lobe almost smooth, with two prominent, smooth, rounded tubercles on the disc and one on each side posteriorly; the anterior angles dentiform, oblique, strongly produced; the posterior lobe rugose, with two anteriorly converging carinæ on the disc, these becoming evanescent behind and extending on to the base of the anterior lobe in front; the hind angles rounded, raised, and moderately dilated. Scutellum transversely rugose, with two posteriorly coalescent carinæ on the disc, the apical process horizontal, stout, and rather short. Abdomen moderately dilated at the sides, rounded at the apex. Legs moderately long: anterior and intermediate femora each armed on the underside before the apex with two, transversely placed, short teeth; posterior femora slightly swollen on the lower side before the apex. Length 25, breadth 8½ millim.

Hab. PANAMA, Bugaba (*Champion*).

One specimen. This species has very much the facies of *Conorrhinus venosus*, Stål; but the head is much shorter, with the antenniferous processes short (the antennæ, in consequence, being inserted much nearer the eyes), the post-ocular portion very little longer than the ocelli, and the eyes very large. It has a longer pronotum and a shorter scutellar process than the South-American *L. geniculatus* (Latr.) (=*corticalis*, Walk.). The red tubercles on the disc and sides of the anterior lobe of the pronotum resemble those of *Spiniger rubropictus*.

Subfam. *PIRATINÆ*.

The six known American genera of this subfamily of Reduviidæ are all represented within our limits, and nearly all the Central-American species belong to known Tropical South-American forms, one only being treated as new.

THYMBREUS.

Thymbreus, Stål, Öfv. Vet.-Ak. Förh. xvi. p. 185 (1859), and xxiii. p. 250; Hemipt. Afr. iii. p. 112; Enum. Hemipt. ii. pp. 105, 108, and iv. p. 56.

A Tropical-American genus including three described species, one of which appears to be confined to our region.

1. **Thymbreus crocinopterus.** (Tab. XIII. fig. 2, ♂.)

Thymbreus crocinopterus, Stål, Stett. ent. Zeit. 1862, p. 457[1]; Öfv. Vet.-Ak. Förh. 1866, p. 254[2]; Enum. Hemipt. ii. p. 108[3].

Opinus crocinopterus, Walk. Cat. Hemipt. Heteropt. viii. p. 1 [4].
Pirates semirufus, Walk. op. cit. vii. p. 99 [5].

Hab. Mexico [2 4] (*Mus. Holm.* [1 3]; *Mus. Vind. Cæs.*), Presidio de Mazatlan (*Forrer*), Orizaba (*Sallé, in Mus. Brit.* [5]), Jalapa (*Höge*); Guatemala, Pantaleon, Mirandilla, Zapote (*Champion*); Panama, Bugaba (*Champion*).

We possess eleven specimens of this species, seven of which are from Guatemala. A male from Pantaleon is figured.

PHORUS.

Phorus, Stål, Stett. ent. Zeit. xxiii. p. 458, nota (1862); Hemipt. Afr. iii. p. 113; Öfv. Vet.-Ak. Förh. 1866, p. 251; Enum. Hemipt. ii. pp. 105, 108, and iv. p. 56.

A monotypic Tropical-American species, ranging from Panama to Brazil. The name *Phorus* has long been preoccupied in Mollusca.

1. **Phorus femoratus.** (Tab. XIII. fig. 4, ♂.)

Cimex femoratus, De Geer, Mém. des Ins. iii. p. 346, t. 35. fig. 4 (1773) [1]; Goeze, Ent. Beytr. ii. p. 270 (1778) [2]; Retzius, Gen. et Spec. Ins. De Geer, p. 87 [3].
Phorus femoratus, Stål, Enum. Hemipt. ii. p. 108 [4].
Cimex arcuatus, Gmelin, Syst. Nat. i. 4, p. 2181 (1788) [5].
Pirates lepidus, Walk. Cat. Hemipt. Heteropt. vii. p. 105 [6].

Hab. Panama (*Boucard*).—Guiana, Surinam [1 4 5]; Amazons, Pará [6]; Brazil [4].

We have received a single male example of this beautiful Tropical-American insect, labelled as having been found by M. Boucard at Panama. It has the head, thorax, scutellum, meso- and metasternum, and nearly the apical half of the abdomen (the connexival margins excepted), violaceous or cæruleous, the anterior lobe of the pronotum being green on the disc. The elytra have the outer part of the corium broadly rufescent and the inner portion testaceous; the clavus testaceous, with the apex white; the membrane in great part black, with a transverse arcuate fascia a little below the base, and an elongate, anteriorly truncated, stripe in the middle at the apex, white, the basal portion being of the same colour as the inner part of the corium. The basal half of the venter is bright rufous. The anterior legs have the femora entirely rufous, and the tibiæ testaceous, with the apex blackish externally. The intermediate and hind legs are nigro-violaceous, with the femora broadly testaceous at the base and the tarsi fusco-testaceous. The antennæ are black, with the first joint entirely, and the second to near the tip, testaceous. A Brazilian specimen (♂) before me, belonging to the Stockholm Museum, merely differs from the Panama insect in having the posterior lobe of the pronotum reddish.

TYDIDES.

Tydides, Stål, Hemipt. Afr. iii. p. 113 (1865); Öfv. Vet.-Ak. Förh. xxiii. p. 251 (1866); Enum. Hemipt. ii. pp. 105, 108, and iv. p. 56.

A monotypic Tropical-American genus, extending northwards to the Mexican State of Vera Cruz. It is closely allied to *Rasahus*, Amy. et Serv., but differs from it in having the metapleural sulcus distant from the margin. The pronotum is smooth and shining, and the anterior lobe is without oblique sulci on the disc. The meso- and metasternum, and the three basal segments of the abdomen, are carinate down the middle, the carina not extending so far downwards in the female as in the male.

1. **Tydides rufus.** (Tab. XIII. fig. 1, ♀.)

Peirates rufus, Serv. Ann. Sciences Nat. xxiii. p. 218 (1831) [1].
Pirates rufus, Amy. et Serv. Hist. Nat. Ins. Hémipt. p. 325 [2].
Tydides rufus, Stål, Öfv. Vet.-Ak. Förh. 1866, p. 255 [3]; Enum. Hemipt. ii. p. 108 [4].
Reduvius brachiatus, Perty, Del. Anim. Art. Brasil. p. 173, t. 34. fig. 10 (1834) [5].
Pirates brachiatus, Walk. Cat. Hemipt. Heteropt. vii. p. 99 [6].
Rasahus sulcicollis, Uhler, P. Z. S. 1894, p. 210 (nec Serv.) [7].

Hab. Mexico [3 4], Jalapa (*Höge*), Teapa in Tabasco (*H. H. Smith*), Temax in N. Yucatan (*Gaumer*); Guatemala, Lanquin and Teleman in Vera Paz, El Tumbador, Las Mercedes, Pantaleon, Mirandilla (*Champion*), Escuintla (*Mus. Vind. Cæs.*); Nicaragua, Chontales (*Janson*).—Venezuela [6]; Guiana [1 2 3 4]; Brazil [3 4 5]; Antilles, Grenada [7].

Found in plenty by myself at Mirandilla, on the Pacific slope, and rarely in the Polochic Valley. A specimen from Mirandilla is figured.

MELANOLESTES.

Melanolestes, Stål, Öfv. Vet.-Ak. Förh. xxiii. p. 251 (1866); Enum. Hemipt. ii. pp. 105, 107.

An American genus including several extremely closely allied forms*. It chiefly differs from *Rasahus* in having the apical portion of the anterior and intermediate tibiæ angularly dilated beneath, the spongy fossa being preceded by a small prominence. The elytra are blackish and immaculate, the wings whitish-hyaline or fusco-hyaline.

1. **Melanolestes morio.** (Tab. XIII. figg. 5, ♂; 5 *a*, anterior leg.)

Pirates morio, Erichs. in Schomb. Reisen Brit. Guiana, iii. p. 613 (1848) [1] (nec Walk.).
Melanolestes morio, Stål, Öfv. Vet.-Ak. Förh. 1866, p. 259 [2]; Enum. Hemipt. ii. p. 107 [3].
Pirates picipes, Walk. Cat. Hemipt. Heteropt. vii. p. 97 (part.) [4].

Hab. Mexico, Atoyac in Vera Cruz (*Schumann*), Valladolid and Temax in Yucatan (*Gaumer*).—Guiana [1–3].

* *Pirates degener*, Walk., from San Domingo, belongs here.

Two males and one female are referred to this species, the female nearly agreeing with one of Stål's specimens of the same sex from Surinam in the Stockholm Museum. The males have more slender legs than the females, and the eyes a little larger and more prominent. The wings are whitish. In *M. picipes* * and *M. abdominalis* (Herr.-Schäff.) the eyes are smaller and more widely separated in the males. Stål's types of *M. picinus* and *M. picicornis* have been seen. *M.* (*Pirates*) *degener*, Walk., is a close ally of *M. morio*.

2. **Melanolestes abdominalis.**

Pirates abdominalis, Herr.-Schäff. Wanz. Ins. viii. p. 63, t. 269. fig. 832 [1].
Melanolestes abdominalis, Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 330 [2].

Hab. North America [1], Southern United States [2].—Mexico [2].

This insect is treated by Stål as a colour-variety of *M. picipes* (Herr.-Schäff.), and by Prof. Uhler as a distinct species. The last-mentioned authority states that both sometimes occur under the same stone.

RASAHUS.

Rasahus, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 325 (1843) (part.); Stål, Enum. Hemipt. ii. p. 105.
Macrosandalus, Stål, Öfv. Vet.-Ak. Förh. xxiii. pp. 251, 259 (1866).
Callisphodrus, Stål, loc. cit. pp. 251, 258 (part.).
Sphodrocoris, Stål, loc. cit. pp. 251, 261.

A Tropical-American genus, with one or two representatives extending northwards into the United States. Upwards of twenty different species are enumerated by Lethierry and Severin, but many of the names are mere synonyms or wrongly placed under *Rasahus* †. These insects, owing to their large size and conspicuous markings seem to have been great favourites with collectors. Eight species are here recorded from Central America, one of which is treated as new. The synonymy of most of them is much involved, Walker having described many previously known forms under new names.

a. Head (except in front) and pronotum with long scattered hairs only.
  a'. Pronotum almost smooth, the anterior lobe with the median sulcus only distinct, the other sulci obsolete, except at the sides in front; elytra with the base and apex of the corium broadly, a common patch adjoining the apex of the scutellum, a transverse mark a

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* *Reduvius pungens*, Lec., is synonymous with this species.

† *R.* (*Pirates*) *minusculus*, Walk., and *R.* (*Pirates*) *megaspilus*, Walk., belong to *Leogorrus*; the latter = *L. picturatus*, Stål. *R.* (*Pirates*) *vittifer*, Walk. = *R. flavovittatus*, Stål. *R.* (*Pirates*) *biplagiatus*, Walk. = *R. maculipennis*, Lep. et Serv.

little below the base of the membrane, extending downwards along its inner margin, and a large patch at the apex, sordid white, the pale portions of the corium often reddish: size large	*albomaculatus*, Mayr.
b'. Pronotum with seven more or less distinct sulci on the anterior lobe.	
a''. Pronotum shining, the sulci deep, the posterior lobe faintly rugulose in front.	
a'''. Elytra with a streak along the inner margin extending from the base to about as far as the apex of the corium, the clavus at the tip, a transverse mark a little below the base of the membrane, and a large elongate mark at its apex, pale ochreous or sordid white	*sulcicollis*, Serv.
b'''. Elytra with a common patch at the base, usually extending down the outer portion of the corium, a large oval spot about the middle of the membrane, and sometimes a small spot at its apex, ochreous; pronotum and legs very variable in colour; legs elongate: body rather broad in both sexes . .	*biguttatus*, Say.
c'''. Elytra with a streak along the inner margin of the corium, extending as far as the apex of the clavus, the clavus at the tip, and a large oval or rounded spot about the middle of the membrane, ochreous; legs moderately elongate, blackish, the femora more or less pale towards the base: body rather narrow (♂), or broad (♀)	*hamatus*, Fabr.
b''. Pronotum slightly shining, with an æneous lustre, the sulci (except the median one posteriorly) shallow and rugulose, the posterior lobe also rugulose; elytra with a transverse patch behind the apex of the scutellum, a transverse spot below the base of the membrane, and a suboval spot at its apex, sordid white . . .	*scutellaris*, Fabr.
c''. Pronotum opaque, the sulci (except the median one posteriorly) shallow and granulate, the posterior lobe also granulate.	
d'''. Elytra with a small spot adjoining the apex of the scutellum, a transverse spot a little below the base of the membrane, and a Λ-shaped mark near the apex of the corium, pale ochreous .	*guttatipennis*, Stål.
e'''. Elytra with a large, elongate, common **X**-shaped ochreous patch.	*bifurcatus*, n. sp.
b. Head and anterior lobe of the pronotum densely cinereo-pubescent, the pronotal sulci shallow; elytra with a spot adjoining the apex of the scutellum, a transverse curved fascia before the middle of the membrane, and a rounded spot at its apex, sordid white	*arciger*, Stål.

1. **Rasahus albomaculatus.** (Tab. XIII. fig. 3, ♀.)

Pirates albomaculatus, Mayr, Verh. zool.-bot. Ges. Wien, xv. p. 438 (1865)[1]; Reise der Novara, Hemipt. p. 154, t. 4. fig. 42[2].

Macrosandalus albomaculatus, Stål, Öfv. Vet.-Ak. Förh. 1866, p. 259[3].

Rasahus (*Macrosandalus*) *albomaculatus*, Stål, Enum. Hemipt. ii. p. 106[4].

Pirates hamifer, Walk. Cat. Hemipt. Heteropt. vii. p. 107 [5].
Lestomerus tuberculatus, Fallou, Rev. d'Ent. x. p. 10 (1891) [6].

Hab. MEXICO, Vera Cruz (*Mus. Holm.*[3 4]), Chiapas (*M. Trujillo*); GUATEMALA, Panzos, San Juan, and San Gerónimo in Vera Paz, El Tumbador, Pantaleon (*Champion*); PANAMA (*Boucard*), Bugaba, Volcan de Chiriqui, Tolé (*Champion*). — COLOMBIA [5], Bogota [4]; BRAZIL [1 2 4].

This fine species is not uncommon in the forest region of the "tierra caliente" of Central America, numerous examples having been found by myself, both in Guatemala and in Panama. All of them have the whitish stripe along the inner margin of the membrane extending rather broadly across its base to near the apical margin of the corium, this transverse marking not being shown in Mayr's figure, though mentioned in his description. The anterior lobe of the pronotum is sharply, and the posterior lobe more feebly, margined at the sides. One of Stål's specimens from Bogota has been examined. A female from Pantaleon is figured.

2. **Rasahus sulcicollis.** (Tab. XIII. fig. 6, ♀.)

Peirates sulcicollis, Serv. Ann. Sciences Nat. xxiii. p. 219 (1831) [1].
Rasahus sulcicollis, Amy. et Serv. Hist. Nat. Ins. Hémipt. p. 326 [2]; Stål, Enum. Hemipt. ii. p. 107 [3]; Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 284 [4].
Macrosandalus sulcicollis, Stål, Öfv. Vet.-Ak. Förh. 1866, p. 259 [5].
Pirates spheginus, Herr.-Schäff. Wanz. Ins. viii. p. 61, t. 269. fig. 828 (1848) [6]; Stål, Stett. ent. Zeit. 1862, p. 457 [7].

Hab. NORTH AMERICA, Lower California [4].—MEXICO [7] (*Sallé, in Mus. Holm.*[3 5]; *Bilimek, in Mus. Vind. Cæs.; Mus. Brit.*), Presidio de Mazatlan (*Forrer*), Jalapa (*Höge*), Teapa in Tabasco (*H. H. Smith*); NICARAGUA, Chontales (*Janson*); PANAMA, Bugaba (*Champion*).—GUIANA, Cayenne [1 2 3]; BRAZIL [6].

Of this species we have received five specimens from within our limits, and others, from Mexico, belonging to the Stockholm, Vienna, and British Museums, have been seen. An example from Teapa is figured.

3. **Rasahus biguttatus.** (Tab. XIII. fig. 7, ♀.)

Petalocheirus biguttatus, Say, Descr. new sp. Heteropt. Hemipt. (New Harmony, Dec. 1831) [1].
Petalochirus biguttatus, Say, New species N. Am. Ins. (New Harmony, Jan. 1832) [2]; Complete Writings, i. pp. 307, 358 [3].
Pirates biguttatus, Stål, Stett. ent. Zeit. 1862, p. 457 [4]; Walk. Cat. Hemipt. Heteropt. vii. p. 98 [5].
Caliisphodrus biguttatus, Stål, Öfv. Vet.-Ak. Förh. 1866, p. 258 [6].
Rasahus (Macrosandalus) biguttatus, Stål, Enum. Hemipt. ii. p. 106 [7].
Rasahus biguttatus, Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 330 [8]; Proc. Calif. Acad. Sci. (2) iv. p. 284 [9].

Reduvius mutillarius, Guér. in Ramon de la Sagra's Hist. fis. polit. y nat. de Cuba, Ins. p. 171 [10] (nec Fabr.).
Rasahus (*Macrosandalus*) *thoracicus*, Stål, Enum. Hemipt. ii. p. 106 [11].

Hab. NORTH AMERICA, Southern States [8], Louisiana [1 2 3 6], Texas [7], Lower California [9]. —MEXICO [6 7 9] (*Mus. Holm.* [4 11]), Presidio de Mazatlan, Ciudad in Durango (*Forrer*), Amula and Omilteme in Guerrero (*H. H. Smith*), Orizaba (*Sallé, in Mus. Brit.* [5]; *Bilimek, in Mus. Vind. Cæs.*), Atoyac (*Schumann*), Jalapa (*Höge*); GUATEMALA, San Gerónimo (*Champion*), Guatemala city (*Salvin*); PANAMA [8]. —AMAZONS, Pará [8]; ANTILLES, Cuba [6 7 8 10].

Apparently a common insect in Mexico. Prof. Uhler [7] has called attention to the colour-variation in this species, comparing it in this respect with *Sirthenea stria* (*carinata*). The head and pronotum are sometimes entirely rufous, sometimes entirely black, or, usually, black, with the posterior lobe only of the latter rufous (*thoracicus*, Stål); the legs are generally rufo-testaceous, with the intermediate and hind femora broadly flavous at the base, but sometimes the reddish portions are almost entirely black; the ochreous coloration at the base of the elytra varies in extent, usually extending down the outer portion of the corium; the membrane, however, is constantly black or blackish, with a large oval or rounded ochreous patch about the middle, and sometimes with indications of a paler spot at the apex. The pronotum is entirely rufous in the earlier stages of this species. One of Stål's types of *R. thoracicus* has been seen. A specimen from Atoyac is figured.

4. **Rasahus hamatus.** (Tab. XIII. fig. 8, ♂.)

Reduvius hamatus, Fabr. Spec. Ins. ii. p. 381 (1781) [1]; Syst. Rhyng. p. 278 [2].
Callisphodrus hamatus, Stål, Hemipt. Fabr. i. p. 121 [3].
Rasahus (*Macrosandalus*) *hamatus*, Stål, Enum. Hemipt. ii. p. 106 [4] (nec Walk.).
Rasahus hamatus, Uhler, P. Z. S. 1894, p. 209 [5].
La Punaise Mouche à deux taches, Stoll, Représ. Punaises, p. 92, t. 23. fig. 163 (1788) [6].
Cimex uncinatus, Gmel. Syst. Nat. i. 4, p. 2200 (1788) [7].
Reduvius mutillarius, Fabr. Syst. Rhyng. p. 280 (1803) [8].
Pirates mutillarius, Herr.-Schäff. Wanz. Ins. viii. p. 61, t. 269. fig. 829 [9].
Callisphodrus mutillarius, Stål, Öfv. Vet.-Ak. Förh. 1866, p. 258 [10].
Pirates maculipennis, Walk. Cat. Hemipt. Heteropt. vii. p. 101 (1873) [11] (nec Lepel.).
Pirates concisus, Walk. loc. cit. p. 101 [12].
Pirates indecisus, Walk. loc. cit. p. 104 [13].
Pirates contiguus, Walk. loc. cit. p. 130 [14].
? *Rasahus sipolisii*, Fallou, Le Nat. 1887, p. 68 [15].
Lestomerus varipes, Fallou, Rev. d'Ent. x. p. 10 (1891) [16].

Hab. MEXICO [9]; GUATEMALA, Zapote, Guatemala city (*Champion*); PANAMA (*Boucard*), Tolé (*Champion*).—SOUTH AMERICA [1 3 7], Colombia [11 12], Venezuela [12 16], Guiana [2 6 8], Amazons [11], Brazil [4 9 10 11 15]; ANTILLES, Grenada [5].

We possess thirteen specimens of this species from within our limits. They vary a little in the shape of the large ochreous spot on the membrane, this being sometimes rounded in the females. The coloration of the legs appears to be much more constant than in *R. biguttatus*. In one of the Guatemalan specimens the anterior lobe of the pronotum is pitchy-red and the clavus is almost entirely pale. The outer portion of the corium is constantly dark.

Dr. Bergroth, who has examined Fallou's types, states (Rev. d'Ent. xi. pp. 262, 263) that *R. sipolisii*, Fall.*=*R. hamatus* (Fabr.), and *Lestomerus varipes*, Fall.=*Pirates concisus*, Walk.; the last-mentioned insect is not separable from *R. hamatus*. No locality was given by Walker for *Pirates indecisus* [13] and *P. contiguus* [14]. One of Stål's specimens of *R. hamatus*, from Minas Geraes, Brazil, has been seen, with which our insect perfectly agrees. A male from Tolé is figured.

5. **Rasahus scutellaris.** (Tab. XIII. fig. 9, ♂.)

Reduvius scutellaris, Fabr. Mant. Ins. ii. p. 313 (1787) [1]; Ent. Syst. iv. p. 207 [2]; Syst. Rhyng. p. 279 [3].

Macrosandalus scutellaris, Stål, Hemipt. Fabr. i. p. 121 [4].

Rasahus scutellaris, Stål, Enum. Hemipt. ii. p. 107 [5].

Pirates scutellaris, Walk., var.?, Cat. Hemipt. Heteropt. vii. p. 102 (♀ nec ♂) [6].

Cimex scutatus, Gmelin, Syst. Nat. i. 4, p. 2196 (1788) [7].

Pirates myrmecinus, Erichs. in Schomb. Reisen Brit.-Guiana, iii. p. 613 (1848) [8].

Hab. GUATEMALA (*Mus. Brit.* [6]); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*). —GUIANA [8], Cayenne [1–5] [7].

Stål's description of the Fabrician type of this species was made from a badly mutilated, discoloured example, with the antennæ, legs, (corium ?), and abdomen missing. In the thirteen specimens obtained by myself in Chiriqui the head and pronotum have an æneous or greenish-æneous lustre; the scutellar process is whitish at the tip; the elytra are black, with the inner margin of the corium at the base, an elongate mark on the posterior half of the clavus, a similar mark on the adjoining portion of the corium, a large transverse spot a little below the base of the membrane, a large suboval spot at its apex, and a short, slender, curved streak immediately beyond the apex of the corium, sordid white; the connexival segments are each broadly banded with whitish, and the bases of the intermediate and hind femora are similarly coloured. The spongy fossa on the underside of the apex of the anterior tibiæ is short, not nearly reaching the middle. The third joint of the posterior tarsi is a little shorter than the other two united. These examples measure from $10\frac{1}{2}$–12 millim. in length, and $2\frac{4}{5}$–$3\frac{3}{4}$ in breadth: Stål gives length 15, breadth 3 millim. A specimen from Bugaba is figured.

* According to the description, this insect should have a small additional spot towards the middle of the elytra.

6. **Rasahus guttatipennis.** (Tab. XIII. fig. 10, ♂.)

Pirates guttatipennis, Stål, Stett. ent. Zeit. 1862, p. 457 [1].
Sphodrocoris guttatipennis, Stål, Öfv. Vet.-Ak. Förh. 1866, p. 261 [2].
Rasahus (*Sphodrocoris*) *guttatipennis*, Stål, Enum. Hemipt. ii. p. 107 [3].
Pirates mexicanus, Walk. Cat. Hemipt. Heteropt. vii. p. 99 (1873) [4].

Hab. Mexico [2] (*Mus. Holm.* [1 3]; *Mus. Vind. Cæs.* [1]), Orizaba (*Sallé, in Mus. Brit.* [4]); Panama, Bugaba, Volcan de Chiriqui (*Champion*).

Not uncommon in Chiriqui, whence we possess ten examples. The types of Stål's and Walker's species have been seen. In this species the pronotum is opaque, often with a slight violaceous lustre, with the sulci on the anterior lobe (except the median one posteriorly) very shallow. The ochraceous or whitish elytral markings show little sign of variation: there is a small spot adjoining the apex of the scutellum, a transverse spot a little below the base of the membrane, and a short ∧-shaped streak near the apex of the corium. A Chiriqui specimen is figured.

7. **Rasahus bifurcatus,** n. sp. (Tab. XIII. fig. 11, ♂.)

Moderately elongate, opaque, nigro-piceous or black; the elytra with a broad ochreous stripe extending along the clavus and inner portion of the corium to beyond the base of the membrane, and then bifurcating and continued for some distance along its inner and outer margins, the outer branch following the direction of the outer nervure to near the tip and usually with a narrow ramus extending backwards along the median nervure at its point of termination (forming a hook-like mark); the abdomen slightly shining above, the connexival segments opaque, each with a broad ochraceous patch at the base; the legs piceous or nigro-piceous, the intermediate and hind femora each with a flavous ring at the base, the tarsi fusco-testaceous; the antennæ piceous, with the basal joint black and the tip of the second joint ochraceous; the head, pronotum, antennæ, and legs with a few widely scattered, long, fine, projecting hairs. Antennæ with joints 2–4 subequal in length, 1 less than half the length of 2. Pronotum much longer than broad, both lobes obsoletely margined laterally; the anterior lobe rounded at the sides, twice as long as, but much narrower than, the posterior lobe, the disc broadly and very shallowly trisulcate down the middle and with two very shallow oblique sulci on each side, the sulci and the lateral margins closely granulate, the median sulcus becoming very deep at the base; the posterior lobe closely and conspicuously granulate, with the obtuse hind angles moderately prominent; the anterior angles tuberculiform and very prominent. Scutellum granulate, the spiniform apical process compressed and semierect. Elytra comparatively short, reaching to about the middle of the sixth abdominal segment in the male and to a little beyond the apex of the fourth segment in the female. Abdomen oval, very much wider than the pronotum, rounded at the apex in the female and broadly subtruncate in the male; the connexivum broad, in the male extending broadly round the apex of the abdomen. Pro-, meso-, and metapleura granulate, the venter smooth. Anterior tibiæ with the spongy fossa extending to nearly two-thirds of its length. Posterior tarsi with the third joint a little shorter than the two others united.

Length 12½–14; breadth of the pronotum 3, of the abdomen 4–4½ millim. (♂ ♀.)

Hab. Panama, Volcan de Chiriqui, Caldera (*Champion*).

Four specimens, two of each sex. Allied to *R. flavovittatus*, Stål (=*vittifer*, Walk.), from Colombia, but differing from it in the unusually short elytra in both sexes, the more prominent anterior angles of the pronotum, the spotted connexivum, and the extended and subtruncate apex of the latter in the male. When the elytra are closed

the ochreous markings form an elongate, **X**-shaped mark, instead of a single broad elongate vitta as in *R. flavovittatus*. *R. bifurcatus* closely resembles various species of *Leogorrus* (*L. fasciatus* &c.).

Stål's type (♀) of *R. flavovittatus* has been examined.

8. **Rasahus arciger.** (Tab. XIII. fig. 12, ♀.)

Pirates arcuiger, Stål, Stett. ent. Zeit. 1862, p. 457, nota (♀) [1].
Callisphodrus arcuiger, Stål, Öfv. Vet.-Ak. Förh. 1866, p. 258 [2].
Rasahus (*Macrosandalus*) *arciger*, Stål, Enum. Hemipt. ii. p. 106 [3].
Pirates morio, Walk., var.?, Cat. Hemipt. Heteropt. vii. p. 104 [4].

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*: ♀).—Colombia [1 2 4], Bogota [3]; Amazons, Santarem [4].

Two specimens of this species were found by myself in Chiriqui, both females, like the type, which is now before me. *R. arciger* differs from all the other Central-American members of the genus in the densely cinereo-pubescent head and anterior lobe of the pronotum. The elytra have a rather large spot below the base (occupying the apex of the clavus and a space on the adjoining portion of the corium), a transverse curved fascia before the middle of the membrane, and a rounded spot at its apex, sordid white. The pronotal sulci are very shallow.

SIRTHENEA.

Sirthenea, Spinola, Essai sur les Hémipt. Hétéropt. p. 100 (1837); Stål, Hemipt. Afr. iii. p. 113; Öfv. Vet.-Ak. Förh. 1866, p. 250; Enum. Hemipt. ii. pp. 104, 105, and iv. p. 56.
Rasahus, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 325 (1843) (part.).

A genus containing about a dozen described forms, two or three only of which are American, these latter being probably nothing more than colour-varieties of one species.

1. **Sirthenea stria.**

La Punaise-mouche à Points blancs, Stoll, Représ. Punaises, p. 139, t. 35. fig. 250 (1788) [1].
Reduvius stria, Fabr. Ent. Syst. iv. p. 201 (1794) [2]; Syst. Rhyng. p. 276 [3].
Sirthenea stria, Stål, Hemipt. Fabr. i. p. 120 [4]; Enum. Hemipt. ii. p. 105 [5]; Berg, Hemipt. Argent. p. 161 [6]; Uhler, P. Z. S. 1894, p. 209 [7].
Reduvius carinatus, Fabr. Ent. Syst., Suppl. p. 545 (1798) [8]; Coqueb. Illustr. Icon. Ins. i. p. 42, t. 10. fig. 15 [9].
Peirates carinatus, Serv. Ann. Sciences Nat. xxiii. p. 221 [10].
Pirates carinatus, Walk. Cat. Hemipt. Heteropt. vii. p. 97 [11].
Rasahus carinatus, Amy. et Serv. Hist. Nat. Ins. Hémipt. p. 326 [12]; Stål, Stett. ent. Zeit. 1862, p. 458 [13].
Sirthenea carinata, Stål, Hemipt. Fabr. i. p. 120 [14]; Öfv. Vet.-Ak. Förh. 1866, p. 252 [15]; Enum. Hemipt. ii. p. 105 [16]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 329 [17].
Pirates roseus, Herr.-Schäff. Wanz. Ins. viii. p. 62, t. 269. fig. 830 (1848) [18].

Hab. North America, United States [12], Carolina [8 9 10 11 14 15 16], Texas and California [17]. —Mexico [11 13 17] (*Mus. Vind. Cæs.*), Jalapa (*Höge*), Teapa in Tabasco (*H. H. Smith*); Costa Rica, Volcan de Irazu (*Rogers*).—Colombia; Guiana, Cayenne [2 3 4], Surinam [1 5 15]; Brazil [5 11 15 18]; Argentine Republic [6]; Antilles, Grenada [7].

Of this conspicuous species I have seen six fully-developed specimens, including both sexes, from Mexico, and a female nymph from Costa Rica; the latter has small ocelli. It varies in the colour of the legs, all the Central-American examples examined having the outer half of the femora more or less infuscate.

Subfam. *ECTRICHODIINÆ.*

The species of this subfamily are chiefly tropical, and the majority of them inhabit the Old World; of the six American genera, three only are represented within our limits.

POTHEA.

Pothea, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 344 (1843); Stål, Öfv. Vet.-Ak. Förh. xvi. pp. 176, 184 (1859); Hemipt. Afr. iii. p. 102; Enum. Hemipt. ii. pp. 101, 103, and iv. p. 48.

An American genus, ranging from the United States to the Argentine Republic; eight species have been described *, one only of which enters our limits, whence three others are now added. They differ from the allied forms in having the post-ocular portion of the head more or less elongated and cylindrical behind. The antennæ are 8-jointed, as in the genus *Ectrichodia*. These insects appear to be rarely found, six specimens only, representing four species, having been seen from Central America.

Head longer than the pronotum, the neck-like basal portion stout, the ante-ocular portion comparatively long and convex.
- Head, and the pronotum and legs partly, rufo-testaceous; elytra with the sides of the corium rufo-testaceous at the base . . . . . *bivittata,* n. sp.
- Head, pronotum, and legs brassy-black; elytra entirely black . . . . . *lugens,* Fabr.

Head about as long as the pronotum, the neck-like basal portion slender, the ante-ocular portion short; the head and pronotum brassy-black, the tibiæ with a flavous ring; elytra with the sides of the corium reddish at the base. *annulipes,* n. sp.

Head slightly shorter than the pronotum, the neck-like basal portion, as well as the ante-ocular portion, comparatively short; elytra with the sides of the corium to beyond the middle flavescent . . . . . *maculata,* n. sp.

1. **Pothea bivittata,** n. sp. (Tab. XIII. fig. 13, ♀.)

♀. Elongate, broadly obovate, shining; black, the head, except at the sides beneath, the pronotum with the sides broadly and a broad median vitta on the anterior lobe, extending on to the posterior lobe (leaving two sinuous black vittæ on the anterior lobe and a large black patch on the disc of the posterior lobe),

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* *P. centralis*, Walk. = *P. lugens* (Fabr.); *P. reciproca*, Walk. = *P. œnescens*, Stål.

the scutellar processes, the sides of the corium to the middle, the connexival margins, the coxæ, some spots on the pleura, the femora with the base and a broad ring close to the apex, the tarsi, a broad transverse fascia on each of the ventral segments 2–5, and a spot at the sides of all of them, more or less rufo-testaceous; the membrane nigro-fuscous; the body glabrous, the tibiæ and tarsi very sparsely pilose, the antennæ clothed with long projecting hairs, the basal joint much more sparsely pilose. Head a little longer than the pronotum, gradually narrowing behind the eyes, the latter very prominent, the long, neck-like, basal portion stout and cylindrical, the ocellar prominence moderately raised, the antenniferous processes nearly twice as long as the eyes, the ante-ocular portion convex along the middle, the tylus cariniform; antennæ with joint 2 twice as long as 1, and much longer than 3 and 4 united, 3 longer than 4 (the other joints broken off). Pronotum with the two lobes subequal in length, the anterior lobe transversely gibbous; the transverse median sulcus, and also the longitudinal one on each side near the hind angles, transversely wrinkled. Scutellar processes somewhat widely separated. Elytra short, reaching to the apex of the fourth segment. Abdomen broad-oval, transversely rugulose above, smooth beneath, the connexivum very broad. Anterior and intermediate tibiæ dilated at the apex, and each with a short spongy fossa beneath.

Length 15, breadth $5\frac{4}{5}$ millim.

Hab. GUATEMALA, Balheu in Vera Paz (*Champion*).

One specimen, somewhat discoloured. In the form of the head this species approaches *P. lugens*, but the eyes are much more prominent, the ante-ocular portion of the head is broader, and the antenniferous processes are longer, the antennæ in consequence being inserted more forwards.

2. **Pothea lugens.** (Tab. XIII. fig. 14, ♂.)

Reduvius lugens, Fabr. Syst. Rhyng. p. 269 (1803) [1].

Pothea lugens, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 184 [2]; Hemipt. Fabr. i. p. 118 (1868) [3]; Enum. Hemipt. ii. p. 104 [4].

Pothea centralis, Walk. Cat. Hemipt. Heteropt. viii. p. 63 [5].

Hab. PANAMA (*Boucard*).—SOUTH AMERICA [1 3], Colombia [2 4 5], Venezuela [2 5], Ecuador [5], Guiana [2 3 4], Amazons [2 5], Brazil [2 3 4].

Of this widely-distributed Tropical-American insect we possess a single male example from Panama. It is black, with a slight æneous lustre on the head, pronotum, and scutellum; the connexivum and ventral segments 1–6 are bright red, each segment being marked with black at the sides in front. One of Stål's specimens, a male from Bogota, has been seen.

3. **Pothea annulipes,** n. sp. (Tab. XIII. figg. 15, ♂; 15 *a*, antenna.)

♂. Elongate, shining, black, with an æneous lustre; the head with the inter-ocular space and the tylus stramineous, in one specimen obscurely fulvous for some distance behind the eyes; the sides of the corium at the base, and sometimes the base also, and a transverse fascia or spot on each of the ventral segments 2–5, reddish-ochreous; the connexival margins sordid ochreous, reddish, or stramineous, the sixth segment black at the apex; the tibiæ each with a flavous ring before the middle; the antennæ with the outer joints piceous or obscure ferruginous; the body glabrous, the legs very sparsely pilose, the antennæ somewhat thickly clothed throughout with very long, fine, projecting hairs. Head somewhat triangular, about as long as the pronotum, rapidly and obliquely narrowed behind the eyes, the latter large and prominent, the long, neck-like, basal portion comparatively slender, the ocelli placed upon an abruptly

raised transverse prominence, the antenniferous processes very short (not half the length of the eyes), the tylus cariniform, the inter-ocular portion flattened and longitudinally sulcate on each side; antennæ with joint 2 nearly twice as long as 1, 3 longer than 4, 5–8 short and subequal, together as long as 3 and 4 united. Pronotum smooth, the anterior lobe short; the transverse median sulcus, and the longitudinal one on each side near the hind angles, transversely wrinkled, the longitudinal median sulcus interrupted. Elytra reaching the apex of the abdomen. Anterior tibiæ considerably dilated at the tip, and with a short spongy fossa beneath.

Length 12–12½, breadth 4–4⅕ millim.

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*).

Three specimens. Very like *P. œnescens*, Stål (=*reciproca*, Walk.), from Brazil, but differing from it in having the neck-like basal portion of the head longer and more slender, the ocellar tubercle more raised, and the femora annulate. The differently formed head will separate it from *P. lugens*.

4. **Pothea maculata,** n. sp. (Tab. XIII. fig. 16, ♀.)

♀. Moderately elongate, obovate, shining; ochreous, the head, pronotum, and scutellum rufo-testaceous, the pronotum with two interrupted sinuous black vittæ on the disc, these being broad on the posterior lobe and narrow on the anterior lobe; the scutellum black at the sides; the elytra fuscous, with the corium broadly flavescent at the sides to beyond the middle; the abdomen with the sixth dorsal segment black, the connexival segments 3–6 spotted with black along the inner side; the ventral segments each with a transverse black fascia on either side in front extending inwards from the black submarginal stripe; the pleura and sterna partly black; the antennæ piceous, with the base of the first joint rufo-testaceous; the femora with the apex narrowly and a narrow ring beyond the middle fuscous; the tibiæ fuscous, with a broad flavous ring before the middle; the body glabrous, the tarsi and the apices of the tibiæ pilose, the antennæ clothed with long projecting hairs, the first joint much more sparsely pilose. Head shorter than the pronotum, transversely convex behind the prominent eyes and then abruptly constricted, the neck-like basal portion cylindrical and comparatively short, the antenniferous processes about as long as the eyes, the inter-ocular portion convex along the middle, the tylus cariniform, the ocellar prominence moderately raised; antennæ with joint 2 a little more than one-half longer than 1, 3 longer than 4 (the others broken off). Pronotum with the anterior lobe slightly shorter than the posterior, the sulci transversely wrinkled. Scutellar processes somewhat widely separated. Elytra reaching to a little beyond the fifth segment. Anterior and intermediate tibiæ slightly dilated at the apex, and each with a short spongy fossa beneath.

Length 12, breadth 4½ millim.

Hab. Mexico, Jalapa (*Höge*).

One specimen. Differs from the other Central-American species in the comparatively short head, as well as in coloration.

MINDARUS.

Mindarus, Stål, Öfv. Vet.-Ak. Förh. xvi. pp. 175, 179 (1859); Hemipt. Afr. iii. p. 102; Enum. Hemipt. ii. p. 101, and iv. p. 48.

Daraxa, Stål, Öfv. Vet.-Ak. Förh. xvi. p. 181 (part.).

The eleven described species of this genus are all from Tropical South America. The one now added differs from *Ectrichodia* in having the antennæ 7- (instead of 8-) jointed, the pronotum unemarginate at the base, and the anterior and intermediate

femora toothed or angulate beneath. The last-mentioned character is not mentioned by Stål, though it is present in one of his types (♀) of *E. sanguinosus* *.

1. **Mindarus rufonotatus,** n. sp. (Tab. XIII. figg. 17, ♂; 17 *a*, antenna.)

♂. Elongate, black; the pronotum with the anterior lobe, two small spots on the disc excepted, and a transverse anteriorly excised, diamond-shaped patch on the disc of the posterior lobe, extending to the base, as well as a large patch at each hind angle, extending forwards along the margin to the transverse median sulcus, sanguineous; the corium with the base, outer margin, and an irregular fascia before the apex, extending upwards along the inner margin, sanguineous; the meso- and metapleura each with one, the propleura with two sanguineous spots; the connexival segments 1–5 each with a large patch, extending on to the sides of the venter beneath, and a double series of transverse spots down the middle of each of the ventral segments, sordid ochreous, the sixth connexival segment above and beneath entirely of this colour; the membrane nigro-fuscous; the tarsi testaceous at the base; the body glabrous, the antennæ somewhat thickly clothed throughout with long, fine, projecting fulvous hairs, the tarsi and the apices of the tibiæ pilose, the latter thickly clothed with short fulvous hairs at the tip beneath. Head transversely rugose, short, rapidly and obliquely narrowing behind the eyes, which are large and prominent, the antenniferous processes extending obliquely outwards and nearly as long as the eyes, the tylus very little raised; antennæ long, apparently 7-jointed, joints 1 and 2 elongate, 2 a little longer than 1, and about one-third longer than 3 and 4 united, 4 half the length of 3, 5–7 united about as long as 3 and 4 together, 7 as long as 5 and 6 united. Pronotum with the anterior lobe, the sulci, and the base of the posterior lobe rugulose, the posterior lobe nearly twice as long as the anterior; the hind angles obtuse and tumid; the median transverse sulcus deep, the longitudinal one shallower and abbreviated behind. Elytra reaching the apex of the abdomen. Anterior femora moderately, the intermediate femora more feebly, incrassate, each with an angular prominence or tooth beneath near the base, the anterior pair also with indications of a second prominence towards the apex.

Length 23, breadth $7\frac{3}{4}$ millim.

Hab. NICARAGUA, Chontales (*Janson*).

One specimen. This species is perhaps nearest allied to *M. sanguinosus*, Stål, from Colombia and Brazil.

ECTRICHODIA.

Ectrichodia, Lepeletier et Serville, Encycl. Méth. x. p. 279 (1825) (part.); Stål, Enum. Hemipt. ii. pp. 101, 102, and iv. p. 48.

Rhiginia, Stål, Öfv. Vet.-Ak. Förh. xvi. pp. 176, 181 (1859); Hem. Afr. iii. p. 102.

The genus *Ectrichodia*, as restricted by Stål in his later work, includes eight species, all American, ranging from the United States to the Argentine Republic. Some of them are variable in colour, and they differ sexually in the form of the head and eyes. The females are almost always brachypterous †, and individuals occasionally occur with still shorter elytra; they also differ from the males in having the head more dilated at the sides behind the eyes, the eyes smaller, and the transverse median sulcus of the pronotum placed farther back, so that the anterior lobe appears to be more gibbous in this sex.

* In the male of *Ectrichodia venusta*, Walk., from Brazil, the anterior and intermediate femora are toothed in the male and unarmed in the female.

† I have seen only one macropterous female of an *Ectrichodia*, a specimen of *E. cruciata* (Say), sent me by Prof. Uhler.

It is probable that the eyes in the male will be found to vary in size in different individuals of the same species. The antennæ are apparently 8-jointed, the usual third joint being divided into two, and the fourth joint into four.

1. **Ectrichodia crudelis.** (Tab. XIII. figg. 18, ♂; 19, var. *crucifera*, ♀.)

Rhiginia crudelis, Stål, Stett. ent. Zeit. 1862, p. 455[1].
Ectrichodia crudelis, Walk. Cat. Hemipt. Heteropt. viii. p. 61[2].
Ectrichodia ruficollis, Stål, Enum. Hemipt. ii. p. 103 (1872)[3].
Ectrichodia crucifera, Stål, loc. cit. p. 103[4].
Ectrichodia fervida, Walk. Cat. Hemipt. Heteropt. viii. p. 57 (1873)[5].

Hab. MEXICO[2] (*Boucard, in Mus. Holm.*[1 3 4]), Presidio de Mazatlan (*Forrer*), Cuernavaca, Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Oaxaca (*Sallé, in Mus. Brit.*[5]); GUATEMALA, Panzos, Teleman, Chacoj, Balheu, and San Gerónimo in Vera Paz, Capetillo (*Champion*); NICARAGUA, Chontales (*Janson*); COSTA RICA (*Van Patten*); PANAMA (*Boucard*).

A very variable and widely-distributed species. In fresh examples the head, except at the sides behind the eyes, the pronotum, the base of the elytra, and the connexivum in great part, are bright sanguineous, this colour fading to testaceous. The pronotum in some specimens has the transverse sulcus, and also the longitudinal one, more or less spotted or marked with black (*crucifera*, Stål). The females sometimes have a large black patch on each of the connexival segments; this form has only been seen from Chontales. The legs are constantly black or piceous. The venter in some examples is spotted or fasciate, in others in great part sanguineous, or entirely black. The name *crudelis* being preoccupied in *Ectrichodia* in the wide sense, it was subsequently changed by Stål; but as this genus is now restricted to a few American forms, this alteration becomes unnecessary. Stål's and Walker's types have been seen. The specimens before me vary from $12\frac{3}{4}$–21 millim. in length, and from 5–9 millim. in breadth. A typical male from Panzos and a female of the var. *crucifera* from Teleman are figured.

2. **Ectrichodia cinctiventris.** (Tab. XIII. fig. 20, head of the ♂.)

Ectrichodia cinctiventris, Stål, Enum. Hemipt. ii. p. 103[1]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 329[2].

Hab. NORTH AMERICA, Texas[1 2] (*Mus. Brit.*), New Mexico[2].—MEXICO (*Mus. Vind. Cæs.*), Teapa in Tabasco (*H. H. Smith*), Temax in N. Yucatan (*Gaumer*).

I have seen nine specimens of *E. cinctiventris*, including one of the types, all males. It is perhaps an extreme form of the very variable *E. crudelis*, from which it differs in having the eyes larger and more prominent in the male, and the sides of the head a little more rapidly converging behind in this sex.

3. **Ectrichodia cruciata.** (Tab. XIII. fig. 21, ♀, var.)

Petalocheirus cruciatus, Say, Descr. of new sp. of Hemipt. Heteropt. (New Harmony, 1831) [1]; Complete Writings, i. p. 358 [2].

Ectrichodia cruciata, Stål, Enum. Hemipt. ii. p. 103 [3]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 329 (part.) [4]; Walk. Cat. Hemipt. Heteropt. viii. p. 56 [5].

Ectrychotes bicolor, Herr.-Schäff. Wanz. Ins. viii. p. 53, t. 266. fig. 822 (1848) [6].

Ectrichodia media, Walk. Cat. Hemipt. Heteropt. viii. p. 62 (1873) [7].

Hab. North America [1 2], Baltimore [6], Pennsylvania, Maryland and the region south and west into Texas [3] and New Mexico [4], Indiana [1 2 5], Georgia [1 2 3], New Orleans [7].—Mexico [4] (*Mus. Vind. Cæs.*).—Cuba, Havana (*Bilimek, in Mus. Vind. Cæs.*).

In the Vienna Museum collection there are two precisely similar females of an *Ectrichodia*—one labelled "Mexico" and the other Cuba—which are somewhat doubtfully referred to this species. They have the connexival segments broadly banded with black, the elytra very short and fuscous in colour, the pronotum without a transverse black spot on the disc of the posterior lobe in front, the legs in great part pale (the apices of the femora excepted), the post-ocular portion of the head broad, and the eyes small.

Subfam. *HAMMATOCERINÆ.*

This subfamily of Reduviidæ includes two American genera only. They exhibit a very remarkable structure in the antennæ, not found in any other known Heteropterous insects: the first joint is short and stout; the second joint is very elongate, slender, and flexible, and divided up into numerous short jointlets (23–28 in *Hammatocerus*, and 8–18 in *Homalocoris*); the third and fourth joints are more slender than the second, subequal in length, and show traces of segmentation. The head is not at all prolonged behind the prominent eyes, and the ocelli are placed between them. Laporte notes that the antennal structure approaches that of the Blattidæ.

These insects are found under the bark of decaying trees, some of them being common in the forest-regions of Tropical America.

HAMMATOCERUS.

Hammacerus, Laporte, Essai d'une Class. Syst. Hémipt. in Guérin's Mag. Zool. 1832, p. 79.

Hammatocerus, Burmeister, Handb. der Ent. ii. p. 235 (1835); Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 345; Stål, Hemipt. Afr. iii. p. 102; Enum. Hemipt. ii. p. 100.

Six species of *Hammatocerus* have been described, some of which are probably nothing more than colour varieties of others, the genus ranging from the Southern United States to the Argentine Republic.

Two species only are known to me from Central America *. These insects have

* Prof. Uhler (Bull. U.S. Geol. & Geogr. Surv. i. p. 328) states that *H. purcis* (Drury) occurs in Mexico, but the locality requires confirmation.

the base of the elytra broadly banded with whitish or pale ochreous. The ventral segments 2–5 are broadly depressed, as well as sulcate, down the middle in both sexes, and the depressed portions of the second and third are densely pilose in the males.

1. **Hammatocerus luctuosus.** (Tab. XIII. figg. 24, ♂; 24 *a*, antenna; 24 *b*, abdomen from beneath.)

Hammatocerus luctuosus, Stål, Öfv. Vet.-Ak. Förh. 1854, p. 287 [1]; Stett. ent. Zeit. 1862, p. 455 [2]; Enum. Hemipt. ii. p. 100 [3].

Hab. MEXICO (*Mus. Holm.*[1 2 3]; *Mus. Vind. Cæs.*), Presidio de Mazatlan (*Forrer*), Xautipa in Guerrero (*H. H. Smith*), Tepic, Atoyac in Vera Paz (*Schumann*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Jalapa (*Höge*), Temax in North Yucatan (*Gaumer*); BRITISH HONDURAS, R. Hondo, Belize (*Blancaneaux*); GUATEMALA, El Tumbador, El Reposo, Capetillo (*Champion*); PANAMA (*Boucard*), Bugaba (*Champion*).

We have received thirty-eight specimens of this species. It seems to be not uncommon in Yucatan. The larva was sent with the perfect insect from Presidio by Forrer and from Yucatan by Gaumer; it has the tarsi 2- (instead of 3-) jointed, and the hind femora to near the tip, as well as the others at the base, rufous. Stål [2] mentions a variety with the connexivum immaculate, but I have not seen a specimen of it. A male of *H. luctuosus* from El Reposo is figured.

2. **Hammatocerus cinctipes.**

Hammacerus cinctipes, Stål, Öfv. Vet.-Ak. Förh. 1858, p. 443 [1].
Hammatocerus cinctipes, Stål, Enum. Hemipt. ii. p. 100 [2].
Hammatocerus mixtus, Costa, Ann. Mus. Zool. Nap. ii. p. 80, nota (1864) [3].
Hammatocerus purcis, Walk. Cat. Hemipt. Heteropt. viii. p. 65 (part.) [4].

Hab. NICARAGUA, Chontales (*Janson*: ♂); COSTA RICA, Volcan de Irazu (*Rogers*: ♀). —COLOMBIA[1 4], Bogota [2]; VENEZUELA [4]; ?GUIANA [3]; BRAZIL; PERU [4].

In this species all the femora have a broad rufous or rufo-testaceous band near the base, the insect thus differing from the closely allied *H. purcis* (Drury), of the Southern United States, which has the hind femora only banded with red. *H. cinctipes* is larger than *H. luctuosus*, and has the head and the anterior lobe of the pronotum more finely granulate, and the base of the elytra more broadly whitish.

HOMALOCORIS.

Platycoris, Perty, Del. Anim. artic. Bras. p. 175 (1834) (nec Guérin).
Homalocoris, Perty, loc. cit. p. 216; Stål, Hemipt. Afr. iii. p. 102; Enum. Hemipt. ii. p. 100.

This well-marked genus appears to have its head-quarters in Mexico and Guatemala, one only of our four species being common to Central and South America. The ventral

segments 2–5 are broadly flattened or depressed, and also sulcate, down the middle in both sexes; but the second and third segments are not densely pilose in the males, as in the corresponding sex of *Hammatocerus*.

a. Legs annulate; pronotum with the lateral margins ochraceous; elytra variegate; second antennal joint divided into about 8 jointlets . . . . *varius*, Perty.
b. Legs black; second antennal joint divided into 13–18 jointlets.
a'. Corium flavous or ochraceous, with a median black spot, the membrane pale at the apex.
a''. Pronotum with an ochreous vitta on each side of the disc extending forwards to the anterior margin; median spot on the corium large, oblong: form rather slender . . . . . *maculicollis*, Stål.
b''. Pronotum with the two oblique ochreous vittæ confined to the posterior lobe; median spot on the corium moderately large, oblique: form robust . . . . . *binotatus*, n. sp.
b'. Corium and membrane black, the corium with a small spot at the base, and the membrane with a small spot at the base and another about the middle of the basal margin, pale flavous; pronotum with two small ochreous spots on the posterior lobe in front . . . . . *guttatus*, Walk.

1. **Homalocoris varius.** (Tab. XIII. figg. 23, ♂; 23 *a*, antenna.)

Platycoris varia, Perty, Del. Anim. artic. Bras. p. 175, t. 34. fig. 16 (1834) [1].
Homalocoris varius, Perty, loc. cit. p. 216 [2]; Stål, Enum. Hemipt. ii. p. 100 [3].
Cethera annulipes, Stål, Öfv. Vet.-Ak. Förh. 1854, p. 237 [4].
Homalocoris annulipes, Stål, Enum. Hemipt. ii. p. 100 [5].

Hab. Mexico, Presidio de Mazatlan (*Forrer*), Atoyac in Vera Cruz (*Schumann*); British Honduras, Belize (*Blancaneaux*); Guatemala, San Gerónimo and Tamahu in Vera Paz, El Reposo, Las Mercedes, Pantaleon, Zapote, Torola, Dueñas (*Champion*); Panama, Bugaba, Caldera, Volcan de Chiriqui, Tolé (*Champion*).—Colombia, Bogota and Los Remedios [4 5]; Brazil [1 2 3].

Of this species we possess a long series of examples from within our limits, these agreeing perfectly with one of Stål's types of *H. annulipes* now before me. Perty's figure, there can be little doubt, must have been taken from a specimen of the same species, the differences observable being evidently due to the imperfect drawing of the artist. The coloration of the pronotum and elytra is quite constant. A male from Pantaleon is figured.

2. **Homalocoris maculicollis.** (Tab. XIII. figg. 22, ♀; 22 *a*, antenna.)

Homalocoris maculicollis, Stål, Enum. Hemipt. ii. p. 101 (♂) [1].

Hab. Mexico (*Mus. Holm.* [1]); Guatemala, San Gerónimo (*Champion*).

Three specimens (two males and one female) of this insect were found by myself at San Gerónimo; the type has been seen.

3. **Homalocoris binotatus,** n. sp. (Tab. XIII. fig. 25, ♀.)

♀. Elongate, rather broad, black; the pronotum with two oblique reddish-ochreous vittæ on the disc of the posterior lobe; the clavus sordid ochreous, with the extreme apex and an oblong patch on the inner part about the middle black; the corium sordid ochreous, with a large oblique black spot on the disc beyond the middle; the membrane with a very broad angulated fascia (formed by confluent longitudinal stripes) extending completely across the basal portion, the part adjoining the corium narrowly and the apex broadly pale; the connexival segments each with about the basal half ochreous; the tarsi fusco-testaceous; the legs somewhat thickly, and the body and antennæ sparsely, clothed with very long blackish hairs, the body also with shorter decumbent curled fulvous hairs. Head coarsely and very sparsely granulate, each granule bearing a long erect seta, the eyes large and prominent; antennæ with joint 2 as long as 3 and 4 united. Pronotum with the posterior lobe closely, and the anterior lobe sparsely and still more coarsely, granulate, the granulosities on the anterior lobe bearing long erect setæ. Elytra extending to a little beyond the abdomen; corium with widely scattered conspicuous granules between the nervures, and the nervures themselves also granulate. Venter shining and very sparsely granulate, the segments 2–5 broadly depressed and also sulcate down the middle. Femora strongly asperate; the anterior and intermediate pairs greatly incrassate, and each armed with two rows of short teeth beneath.

Length $15\frac{1}{2}$, breadth $5\frac{1}{4}$ millim.

Hab. Guatemala, Teleman in Vera Paz (*Champion*).

One specimen, from the lower part of the Polochic Valley. Larger, broader, and more robust than *H. maculicollis*, the legs much stouter, the pronotal vittæ confined to the posterior lobe, the corium more distinctly granulate, and with the median spot smaller and oblique.

4. **Homalocoris guttatus.** (Tab. XIII. fig. 26, ♀.)

Reduvius guttatus, Walk. Cat. Hemipt. Heteropt. vii. p. 181 (♀)[1].

Hab. Mexico, Omilteme in Guerrero 8000 feet (*H. H. Smith*), Oaxaca (*Sallé, in Mus. Brit.*[1]).

We have received a single female specimen of this species from Guerrero, and there are two others in the British Museum.

Subfam. *APIOMERINÆ.*

Of the fifteen recognized genera of this subfamily of Reduviidæ, eleven are American, and two only of these are represented within our limits, one of them, however, by numerous species. With few exceptions, the whole of the Apiomerinæ are tropical.

AGRIOCORIS.

Agriocoris, Öfv. Vet.-Ak. Förh. xxiii. p. 247 (1866); Enum. Hemipt. ii. p. 99.

A Tropical-American genus including two or three species, one of which is a common insect in the "tierra caliente" of Chiriqui.

The form of the apex of the terminal genital segment of the males is very different from that of the same sex of *Apiomerus.*

1. **Agriocoris flavipes.** (Tab. XIV. figg. 5, ♀; 6, last genital segment, ♂.)

La Punaise au Collier jaune, Stoll, Représ. des Punaises, p. 164, t. 41. figg. 297, A (1788) [1].
Reduvius flavipes, Fabr. Syst. Rhyng. p. 277 (1803) [2].
Agriocoris flavipes, Stål, Hemipt. Fabr. i. p. 115 [3]; Enum. Hemipt. ii. p. 100 [4].
Heniartes curvipes, Sign. Ann. Soc. Ent. Fr. 1862, p. 584, t. 15. fig. 6 [5].
Agriocoris curvipes, Stål, Enum. Hemipt. ii. p. 99 [6].

Hab. NICARAGUA, Chontales (*Janson*); PANAMA, Bugaba, Volcan de Chiriqui, David (*Champion*).—SOUTH AMERICA [2 3], Colombia [6], Surinam [4], Peru [5 6].

The Central-American specimens agree with the Bogota insect mentioned by Stål [6] (now before me), all of them having the anterior lobe of the pronotum partly flavous. The colour of the pronotum is variable, the transverse black fascia on the posterior lobe being sometimes obliterated or divided into two spots. In the South-American examples the anterior lobe is sometimes black, as described by Fabricius and Signoret *.

The males have the last genital segment deeply emarginate on each side of the produced median lobe, the latter being rounded at the apex; the claspers are long and somewhat sinuous, and strongly hooked at the tip, the latter being blunt. The females, like the males, have the venter very sparsely pilose.

APIOMERUS.

Apiomerus, Hahn, Wanz. Ins. i. p. 29 (1831) (sine descr.); Laporte, Essai class. Hémipt. in Guérin's Mag. Zool. 1832, p. 82; Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 351; Stål, Öfv. Vet.-Ak. Förh. 1866, p. 247; Enum. Hemipt. ii. p. 95.
Herega, Amyot et Serville, loc. cit. p. 354 (1843).
Dichrorhabdallus, Stål, Hemipt. Fabr. i. p. 116 (1868).
Callibdallus, Stål, loc. cit. p. 117.

An American genus ranging from Canada to the Argentine Republic, including a large number of species, the majority of which are tropical. Eighteen are here recorded from within our limits, four of them being described as new; *A. ochropterus*, Stål, and *A. rubrocinctus*, H.-S., are, however, included with some doubt. Many of the species are so variable in colour that they can only be separated by the form of the terminal genital segment of the males, or by the structure of the first genital (terminal dorsal) segment of the females. In the males the apex of the last genital (ventral) segment, which in several species is produced into a short process, is either armed with two long spines—usually curved upwards and obliquely divergent (*A. hirtipes*, *A. subpiceus*, &c.), but sometimes horizontal and laterally extended (*A. flaviventris*, &c.),—or has a single long unarmed truncated process (*A. lanipes*); the long lateral hooks or claspers, which

* In the Stockholm Museum there is an *Agriocoris*, from the Amazons, which differs from our insect in having the base of the pronotum produced into a prominent rounded lobe on each side of the median emargination (a character not indicated in Signoret's or Stoll's figures): this form is noticed by Stål in his remarks on *A. curvipes*, and the name he suggests, *A. fasciata*, can be used for it.

are articulated to the upper inner edge of this segment, also differ in form according to the species, these being sometimes angularly dilated on the inner edge (*A. emarginatus*); a second pair of very short claspers are visible in one species (*A. emarginatus*). In the females the narrow first genital (last dorsal) segment is sometimes furnished with a foliaceous, piriform or orbicular, appendage on each side, movable at the will of the insect (*A. vexillarius*, *A. hirtipes*, &c.); in others (*A. flaviventris*, *A. pictipes*, &c.) the outer apical angles of this segment are simply bent downwards, so as to form a small transverse or triangular plate; in others, again (*A. subpiceus*, &c.), the lateral margins of this segment are quite simple and form an uninterrupted outline with the connexivum; the terminal genital segment is trapezoidal in shape and invisible from above, the chitinous surface of it becoming ventral. The females, moreover, differ from the males in having the ventral surface thickly pilose, and the posterior tibiæ compressed and sinuous before the apex, and furnished with a dense brush of short bristly hairs on the upper edge beyond the middle. In the males the ventral surface is sparsely pilose and the posterior tibiæ have a much shorter brush, sometimes formed of a few scattered bristles only. The females have the power of exuding a sticky fluid from the ventral surface, and probably from the tibiæ also: the hairs on the venter are matted and stuck together with this substance in nearly all the specimens examined. From what I have observed of the habits of one of the largest species, *A. vexillarius*, which is quite common in forest-clearings in the "tierra caliente" of Chiriqui, this viscous fluid appeared to be used for the purpose of securing a firm grasp of its prey—freshly emerged Longicornia, &c., nearly as large as itself—during the process of suction. Dr. Sharp, however (Trans. Ent. Soc. Lond. 1892, pp. 191–199), has recorded a curious fact in connection with the mode of deposition of the eggs of an Amazonian Reduviid (possibly a species of Harpactorinæ or Apiomerinæ), showing that this fluid is used for gumming them down on a leaf. The foliaceous appendages of the females of *A. vexillarius*, &c., are bright sanguineous in life, and very conspicuous, looking like two red flags waving about, as the insect runs over the surface of fallen timber in search of its prey. These appendages, like the more or less expanded and similarly-coloured sixth dorsal segment of the males of the same species, often fade after death to flavous or even black. The anterior and intermediate tarsi are short and retractile, fitting into a groove along the outer face of the stout, broad tibiæ.

Some of the smaller forms are found upon flowers or herbage. I am unacquainted with the larva or pupa of any of the species of the genus.

a. ♀ with foliaceous genital appendages; ♂ with two divergent, upwardly curved spines at the apex of the last genital segment. [APIOMERUS, Hahn.]

a'. ♀ appendages very large, elongate, and piriform; sixth dorsal segment of ♂ dilated posteriorly into a very broad plate, which is emarginate in the centre at the apex: species large and robust . . . . . *vexillarius*, n. sp.

b'. ♀ appendages smaller, orbicular; sixth dorsal segment of ♂ narrowly dilated posteriorly, truncate or rounded at the apex: species large or moderately large.

a''. Body robust, elongate; legs stout or moderately stout; membrane black or fuscous.

a'''. ♂ claspers stout; ♀ appendages moderately large; corium with a subtriangular sanguineous or reddish patch . . . . . *hirtipes*, Fabr., var.

b'''. ♂ claspers slender; ♀ appendages smaller; corium with a very large subtriangular sanguineous or pale ochreous patch . . . . *elatus*, Stål.

b''. Body less elongate, comparatively broad; legs more slender; membrane subhyaline; corium pale ochreous, except at the extreme base . . . . . *ochropterus*, Stål.

b. ♀ without foliaceous genital appendages.

c'. ♀ with the sides of the first genital (terminal dorsal) segment forming a continuous outline with the connexival margin.

c''. ♂ with a single long truncated process at the apex of the last genital segment; head, pronotum, pleura, &c. clothed with shaggy pallid pubescence: species large and robust . . . . . *lanipes*, Fabr.

d''. ♂ with two upwardly curved, more or less divergent spines at the apex of the last genital segment, the spines sometimes arising from a short process: species smaller.

c'''. Pronotum with the base feebly sinuate on each side near the hind angles; ♂ claspers simple.

*a*⁴. Posterior lobe of the pronotum smooth or feebly rugulose.

*a*⁵. Membrane infuscate.

*a*⁶. ♂ with the two spines at the apex of the last genital segment arising from a short broad process, the apical margin of this segment not toothed or angulate at the sides above the points of insertion of the claspers.

*a*⁷. The process truncate between the spines, the latter feebly divergent; corium with a large subtriangular ochreous patch . . . . . *binotatus*, n. sp.

*b*⁷. The process not truncate between the spines, the latter strongly divergent; corium and posterior lobe of the pronotum usually piceous . . . . . *subpiceus*, Stål.

*b*⁶. ♂ with the two spines at the apex of the last genital segment not arising from a short process.

*c*⁷. The apical margin of the terminal genital segment toothed or subangulate at the sides above the points of insertion of the claspers (appearing emarginate on each side); corium dark.

*a*⁸. The spines long and strongly divergent; membrane mottled with darker colour: body robust, elongate . *tristis*, n. sp.

*b*⁸. The spines shorter and feebly divergent, widely separated at the base; membrane spotted or unicolorous: body rather short . . . . . *immundus*, Bergr.

d^7. The apical margin of the terminal genital segment not toothed or angulate at the sides above the points of insertion of the claspers.

c^8. The spines very long, acuminate, and divergent; elytra moderately long, the corium and membrane dark: body robust . . . . . *longispinis*, n. sp.

d^8. The spines very much shorter, divergent; elytra relatively longer, the corium with some of the nervures partly ochreous (rarely in great part ochreous), the membrane blackish; legs rather slender: body narrow (♂), broader (♀) . . . . . *mæstus*, Stål.

b^6. Membrane hyaline, with the base only dark; corium blackish, the nervures partly or entirely pale; ♂ with the apical margin of the terminal genital segment toothed at the sides above the points of insertion of the claspers . . . . . *venosus*, Stål.

b^4. Posterior lobe of the pronotum rugose; apical margin of the terminal genital segment of ♂ broadly truncate between the spines . . . . . *rubrocinctus*, H.-S.

d'''. Pronotum with the base deeply sinuate on each side near the hind angles, the posterior lobe smooth; ♂ claspers angularly dilated on the inner side about the middle, the spines long and feebly divergent: body robust, the legs stout . . . . . *emarginatus*, Stål.

d'. ♀ with the outer apical angles of the first genital (terminal dorsal) segment deflexed and not forming a continuous outline with the connexival margin; ♂ with the apex of the last genital segment produced into a short process in the centre and armed with two spines. [Herega, Amy. et Serv.]

e''. ♂ with the two genital spines upwardly curved and obliquely divergent.

e'''. Pronotum partly rufous (in the Mexican specimens usually with two transverse black fasciæ, and the basal margin narrowly pale towards the sides); the corium (except in dark vars.) rufous or reddish-ochreous, with the apical margin narrowly ochreous; connexival margins, at most, very narrowly pale . . . . . *spissipes*, Say*.

f'''. Pronotum black, with reddish or pale basal margin; corium obscure rufo-piceous; connexival margins more broadly pale . . *crassipes*, Say, var.

f''. ♂ with the two genital spines horizontal, rather short and stout, and laterally extended.

g'''. Ventral segments flavous, with the sutures very narrowly black: species larger, more robust, and more brightly coloured . . . . *flaviventris*, H.-S.

h'''. Ventral segments more broadly banded with black: species smaller and less brightly coloured . . . . . *pictipes*, H.-S.

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* I have not seen North-American males of this species.

1. **Apiomerus vexillarius,** n. sp. (Tab. XIV. figg. 1, ♀; 1 *a*, one of the appendages, ♀; 1 *b*, part of posterior leg, ♀; 2, sixth dorsal segment, ♂; 2 *a*, last genital segment, ♂; 2 *b*, ditto, from within; 2 *c*, ditto, in profile.)

Broad, robust, shining, black, the corium, except at the base narrowly, brownish-ochreous or flavescent, the membrane smoky hyaline, the antennæ ferruginous, with the basal one or two joints sometimes infuscate, the connexival segments bordered with ochreous in front, the legs entirely black or with the apices of the femora and the tibiæ in part rufous; the dilated portion of the sixth dorsal segment in the male and the foliaceous appendages of the female bright sanguineous in life (often discoloured in dried specimens), the narrow basal portions of the latter flavescent; the body sparsely clothed with erect black setæ, the elevated portions of the anterior lobe of the pronotum, the entire posterior lobe, the base of the scutellum, and also that of the corium, the pleura and sterna, densely, and the head more sparsely, clothed with short cinereous or fulvo-cinereous decumbent pubescence, the other parts of the body also finely pubescent, the connexival margins with a dense fringe of short black hairs; the legs densely setose. Antennæ with joints 1 and 2 equal in length, 3 nearly twice as long as 2, 3 and 4 equal. Pronotum with the base feebly sinuate on each side near the hind angles. Elytra longer than the abdomen in both sexes, the connexival margins sinuate. Legs moderately stout, the intermediate and hind femora thickened before the tip.

♂. Terminal genital segment with two long, upwardly curved, divergent spines; the claspers moderately long, abruptly bent inwards at the middle; sixth dorsal segment produced posteriorly into a broad, laterally dilated, foliaceous plate, which is emarginate in the centre at the apex; posterior tibiæ with a short brush of hairs on the upper edge beyond the middle.

♀. First genital segment with a very large, elongate, broadly piriform, foliaceous appendage on each side; venter densely pilose; posterior tibiæ compressed and sinuous before the apex, and with a long dense brush of short bristly hairs on the upper edge beyond the middle.

Length 21–26, breadth $7\frac{1}{4}$–$10\frac{1}{2}$ millim.

Hab. Panama, Bugaba, Volcan de Chiriqui, Tolé (*Champion*).

Found in abundance by myself in forest-clearings in Chiriqui, in 1882–83. This large and conspicuous species is closely allied to the South-American *A. pilipes* (Fabr.), differing from it in having the foliaceous appendages of the females much more elongate and about twice as large as in the corresponding sex of that insect, a specimen of which has been communicated by Dr. Aurivillius for comparison. In the males these appendages are shorter and completely connate, forming a broad, laterally dilated plate round the apex of the abdomen. The specimens are quite constant in colour (the variation noticed being merely due to discoloration after death or to immaturity), except that the legs are sometimes partly rufous. The present species superficially resembles *A. lanipes*, which, also, is quite constant in colour, so far as the Central-American examples are concerned. Upwards of 100 examples of *A. vexillarius* have been examined.

2. **Apiomerus hirtipes.** (Tab. XIV. figg. 9, ♀, var.; 9 *a*, one of the appendages of the ♀; 10, last genital segment, ♂.)

Reduvius hirtipes, Fabr. Mant. Ins. ii. p. 311 (1787)[1]; Ent. Syst. iv. p. 201[2]; Syst. Rhyng. p. 274[3].

Apiomerus hirtipes, Hahn, Wanz. Ins. i. p. 29, t. 5. f. 19 (♂) (1831)[4]; Burm. Handb. der Ent. ii. p. 231[5].

La Punaise noire à pattes raboteuses, Stoll, Représ. des Punaises, p. 57, t. 13. fig. 90 (♂) (1788)[6].

Apiomerus pilipes, Stål, Enum. Hemipt. ii. p. 96[7] (part.).

♂. *Apiomerus hæmorrhoidalis*, Stål, in litt. (*in Mus. Holm.*)[8].

Hab. Colombia[7]; Guiana, Surinam[5 6], Cayenne[1–4 7]; Amazons[8], Pará[5]; Brazil[4 5].

Var. The corium with a more or less distinct triangular sanguineous patch in the middle in the female, the patch larger and more extended in the male; the posterior lobe of the pronotum piceous in the male.

Hab. Nicaragua, Chontales (*Janson*: ♀); Costa Rica, Rio Sucio (*Rogers*: ♀); Panama, Colon (*Boucard*: ♂ ♀).—Amazons.

The five specimens from Central America referred to *A. hirtipes* agree very well with the figures of Stoll and Hahn, except in colour: the four females have a triangular sanguineous patch in the middle of the corium towards the apex, this being less distinct in the Panama example; the male, which is very much smaller, has the posterior lobe of the pronotum piceous and the light-coloured patch on the corium much more extended. The females have the foliaceous appendages moderately large and suborbicular in shape, with the base narrow. The males have the sixth dorsal segment dilated and produced, with the apex testaceous or sanguineous and somewhat rounded; the two spines at the apex of the terminal genital segment are long, widely divergent, and curved upwards, and hooked at the tip; and the claspers are stout, and abruptly bent inwards at the middle. Stål sinks *A. hirtipes* (Fabr.) as synonymous with *A. pilipes* (Fabr.); but the specimens sent me by Dr. Aurivillius from the Stockholm Museum under these names (apparently in Stål's handwriting) seem to me to belong to different species, the female of *A. pilipes* having the foliaceous appendages broader at the base, as well as differing in the colour of the elytra, &c. Stål, moreover, treats the *A. hirtipes* of Fabricius and the *A. hirtipes* of Hahn as different species, renaming the latter *A. nigrilobus*, but in this I cannot follow him. The specimen labelled *A. hæmorrhoidalis* in the Stockholm Museum, a male from the Amazons, has the intermediate and hind legs in great part, the anterior knees, and the abdomen testaceous, the latter with the apex bright sanguineous.

3. **Apiomerus elatus.** (Tab. XIV. figg. 3, ♂; 3 *a*, 3 *b*, last genital segment, ♂; 4, apex of the abdomen from above, ♀.)

Apiomerus elatus, Stål, Stett. ent. Zeit. 1862, p. 454[1]; Enum. Hemipt. ii. p. 96[2]; Walk. Cat. Hemipt. Heteropt. viii. p. 67 (part.)[3].

Hab. Mexico (*Mus. Holm.*[1 2]; *coll. Signoret*[1], *in Mus. Vind. Cæs.*; *Mus. Brit.*), Orizaba (*Bilimek*, *in Mus. Vind. Cæs.*), Oaxaca (*Mus. Brit.*[3]), Atoyac in Vera Cruz (*Schumann*), Teapa in Tabasco (*H. H. Smith*), Chiapas (*M. Trujillo*); Guatemala (*Mus. Brit.*), Tamahu, Chacoj, Panima, Sabo, and Cubilguitz in Vera Paz (*Champion*); Honduras (*Mus. Holm.*[2]; *Mus. Brit.*[3]; *Wittkugel*, *in Mus. Vind. Cæs.*).

A large and robust species, with a large subtriangular sanguineous, orange, or pale ochreous patch on each elytron, extending completely across the corium, but not reaching its base or apex. The anterior and intermediate femora are sometimes

flavescent beneath. The females have the foliaceous appendages moderately large and rounded, with the base narrow. The males have the sixth dorsal segment dilated and produced, with the apex more or less testaceous and subtruncate; the two spines at the apex of the last genital segment are long, widely divergent, curved upwards, and feebly hooked at the tip; and the claspers are long and slender, and abruptly bent inwards at the middle. *A. elatus* is very closely allied to *A. hirtipes*, but it is more shining and more sparsely pilose; the foliaceous appendages of the female are smaller, and the claspers of the male are more slender. The thirty-six specimens seen only vary in the colour of the elytral patch, this fading from sanguineous to pale ochreous. *A. repletus*, Uhler (? = *occidentalis*, Glover), from California, is a somewhat similarly coloured form, and perhaps a variety of the present species.

4. **Apiomerus ochropterus.** (Tab. XIV. figg. 7, ♂; 7 *a*, last genital segment, from within; 8, one of the appendages of the ♀.)

Apiomerus flavipennis, Stål. Öfv. Vet.-Ak. Förh. 1855, p. 188 (♀)[1] (nec Herr.-Schäff.).
Apiomerus ochropterus, Stål, op. cit. 1866, p. 249 (♀)[2].
Apiomerus proteus, Stål, Enum. Hemipt. ii. p. 96[3].

Hab. ? Mexico (*coll. Signoret, in Mus. Vind. Cæs.*: ♂ ♀). — Colombia[1 2], Bogota[3], Antioquia[3] (*Mus. Holm.*).

There are two specimens of this species in the Vienna Museum labelled as from "Mexico"; this locality is almost certainly incorrect, but as the species may occur in the State of Panama, it is included here. *A. ochropterus*, the type of which is before me, is nearly allied to *A. elatus*, but it is less elongate (appearing relatively broader), the corium is pale ochreous, with the extreme base only darker, the membrane is quite pale and subhyaline, the antennæ are ferruginous, the head is comparatively short, and the propleura are thickly clothed with pale shaggy pubescence; the female, moreover, has much larger foliaceous appendages, and the male has the sixth dorsal segment more broadly extended round the apex of the abdomen. In two of the three specimens seen the posterior tibiæ, except at the apex, and the apices of the posterior femora are rufous or testaceous. The males have the two spines at the apex of the terminal segment a little shorter than in the same sex of *A. elatus* or *A. hirtipes*; the claspers are more slender than in *A. hirtipes*, and shorter than in *A. elatus*.

5. **Apiomerus lanipes.** (Tab. XIV. figg. 13, ♀; 14, 14 *a*, last genital segment, ♂.)

Reduvius lanipes, Fabr. Syst. Rhyng. p. 274 (1803)[1]; Lepel. et Serv. Encycl. Méthod. x. p. 276[2].
Apiomerus lanipes, Amy. et Serv. Hist. Nat. Ins. Hémipt. p. 352[3]; Stål, Hemipt. Fabr. i. p. 117[4]; Enum. Hemipt. ii. p. 97[5].
Apiomerus lanius, Stål, Öfv. Vet.-Ak. Förh. 1855, p. 188[6]; op. cit. 1866, p. 249 (♂ ♀)[7].

Hab. ? Mexico (*Mus. Vind. Cæs.*); Panama, Peña Blanca in Chiriqui (*Champion*).— South America[1 4], Colombia[5], Guiana[2 3 5], Brazil[5 6].

Of this species seven specimens were captured by myself in Chiriqui. It is easily recognizable by its large size and robust build, in connection with the dense shaggy pallid pubescence of the head, thorax, pleura, and sterna, and the unilobate last genital segment of the male. In the Central-American specimens the corium is brownish-ochreous, with the base and apex darker, and the membrane is paler towards the base. The males have a single, long, very stout, upwardly curved process at the apex of the terminal genital segment, this process being truncate and slightly emarginate at the tip; the claspers are long, and strongly curved beyond the middle. The females are without foliaceous appendages. A single (♀) specimen, labelled "Mexico," belonging to the Vienna Museum (sent to me under the name of *A. flavipennis*), seems to belong here; the locality requires confirmation.

6. **Apiomerus binotatus,** n. sp. (Tab. XIV. figg. 11, ♂; 11 *a*, 11 *b*, last genital segment, ♂.)

Moderately elongate, rather slender (♂), broader and more robust (♀), shining, black; the elytra each with a large subtriangular ochreous or reddish-ochreous patch on the corium, extending to the outer margin but not reaching the base or apex, the membrane nigro-fuscous; the anterior coxæ and trochanters, a broad annulus on the posterior tibiæ before the middle, and usually the base of the anterior and intermediate femora beneath, flavescent; the connexival margins with a row of more or less distinct flavous spots, the venter sometimes with a submarginal row of similarly-coloured spots; the apical joint of the antennæ ferruginous at the tip; the body sparsely clothed with erect blackish hairs, and also with a very short fine decumbent greyish pubescence; the legs somewhat thickly setose. Antennæ with joints 1 and 2 subequal in length, 3 more than twice the length of 2, 3 and 4 subequal. Pronotum with the base feebly sinuate on each side near the hind angles. Elytra extending to far beyond the abdomen in both sexes. Legs rather slender, the femora slightly swollen before the tip.

♂. Terminal genital segment produced at the apex into a short truncated process, which is armed on each side with a moderately long, upwardly curved, divergent spine, the apex thickly clothed with long hairs; the claspers stout, abruptly bent inwards a little beyond the middle; posterior tibiæ with a short brush of bristly hairs on the upper edge.

♀. First genital segment truncate at the apex; posterior tibiæ compressed and sinuous before the apex, and with a dense brush of short bristly hairs on the upper edge beyond the middle; venter closely pilose.

Length $13\frac{1}{2}$–$16\frac{1}{2}$, breadth $3\frac{1}{2}$–$5\frac{1}{2}$ millim.

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*).

Found in plenty in Chiriqui. This species resembles *A. elatus* in colour, except that it has a flavous annulus on the posterior tibiæ; but it is much smaller and less robust, with the genital structure very different in the male, and the female without foliaceous appendages. From the similarly-coloured variety of *A. mœstus*, Stål, it may be separated by the more elongated apical joint of the antennæ and the structure of the terminal genital segment of the male. In one specimen there is a small ochreous spot on each side of the anterior lobe of the pronotum.

7. **Apiomerus subpiceus.** (Tab. XIV. figg. 12, ♂; 12*a*, last genital segment, ♂.)

Apiomerus subpiceus, Stål, Stett. ent. Zeit. 1862, p. 454[1]; Enum. Hemipt. ii. p. 97[2]; Walk. Cat. Hemipt. Heteropt. viii. p. 66[3].

Hab. Mexico (*Mus. Holm.*[1 2]; *Sichel, in Mus. Vind. Cæs.*; *Sallé*), Orizaba (*Bilimek*,

in Mus. Vind. Cæs.), Jalapa (*Höge*), San Lorenzo, Omealca and Cuesta de Misantla (*M. Trujillo*), Atoyac (*Schumann*), Oaxaca (*Mus. Brit.*[3]), Valladolid in Yucatan (*Gaumer*); Guatemala, San Gerónimo, Capetillo, Zapote (*Champion*); Costa Rica, Alajuela (*coll. Bergroth*).

Not uncommon in the Mexican State of Vera Cruz. In this species the corium and the posterior lobe of the pronotum are usually brownish or piceous, rarely black. The legs vary in colour from piceous, with the hind tibiæ (the base excepted) ferruginous or testaceous, to entirely black. The antennæ in some specimens are ferruginous, and in others almost entirely black. The membrane is uniformly fuscous. The males have the apex of the last genital segment broadly produced in the centre and armed with two moderately long, widely divergent, upwardly curved spines; the claspers are long and somewhat abruptly bent inwards towards the apex.

8. **Apiomerus tristis,** n. sp. (Tab. XIV. figg. 15, ♂; 15 *a*, 15 *b*, last genital segment, ♂.)

Robust, black, the posterior lobe of the pronotum piceous in the middle and the anterior femora flavescent beneath at the base in one specimen; the membrane fusco-testaceous, mottled with blackish, the two inner cells dark at the base, the apical portion paler and subhyaline, the nervures at the base, as well as those on the inner portion of the corium in one specimen, ochreous; the connexival sutures indicated laterally by an ochreous mark; the antennæ and basal joints of the tarsi ferruginous; the body thickly clothed with erect blackish setæ and also with short decumbent pallid pubescence; the legs thickly setose. Antennæ with joint 2 slightly longer than 1, 3 nearly twice as long as 1, 4 a little shorter than 3. Pronotum with the base feebly sinuate on each side near the hind angles. Elytra extending to far beyond the abdomen in both sexes. Legs stout, the femora slightly swollen before the tip.

♂. Terminal genital segment strongly transverse, armed with two widely separated, moderately long, upwardly curved, divergent spines, the apical margin with a short tooth on each side above the points of insertion of the claspers (appearing emarginate laterally); the latter comparatively short and stout, and abruptly bent inwards beyond the middle.

♀. Venter thickly pilose.

Length $16\frac{1}{2}$–18, breadth 6–$7\frac{1}{5}$ millim.

Hab. Mexico, Tepic (*Schumann*).

One pair. Very like *A. subpiceus*, Stål, but differing from it in the more thickly setose body and the distinctly mottled membrane; the male is more robust than the corresponding sex of that species, and it has the terminal genital segment more transverse and the armature different—the two spines are more widely separated at the base, the apical margin is angularly dilated or toothed above the points of insertion of the claspers, and the claspers themselves are shorter and more abruptly bent inwards beyond the middle.

9. **Apiomerus immundus.** (Tab. XIV. figg. 16, ♀; 17, 17 *a*, last genital segment, ♂.)

Apiomerus immundus, Bergr. Bull. Soc. Ent. Fr. 1898, p. 307 (♂)[1].

Hab. Mexico[1] (*Mus. Paris, coll. Bergroth*), San Lorenzo and Omealca in Vera Cruz (*M. Trujillo*), Atoyac (*Schumann*), Teapa in Tabasco (*H. H. Smith*).

Sent in plenty from Teapa. Very like *A. subpiceus*, Stål, and similarly coloured; but smaller and less elongate, the membrane in light-coloured specimens usually with scattered darker spots.

The males have the two spines at the apex of the last genital segment rather short, upwardly curved, moderately divergent, and widely separated at the base, and the apical margin of this segment is subangulate on each side opposite the points of insertion of the claspers; the latter are comparatively short. The genital spines of the male are shorter, less divergent, and more widely separated at the base than in the same sex of *A. subpiceus*.

10. **Apiomerus longispinis,** n. sp. (Tab. XIV. figg. 18, ♂; 18 *a*, 18 *b*, last genital segment, ♂.)

Moderately robust, shining, black, the corium and posterior lobe of the pronotum sometimes obscure reddish-brown, the membrane uniformly fuscous or nigro-fuscous, the nervures of the latter usually ochreous at the base, the connexival sutures indicated laterally by a rufous or ochreous mark, the antennæ varying in colour from black to ferruginous; the anterior and intermediate femora, trochanters, and coxæ sometimes flavous beneath, and the posterior tibiæ and tarsi sometimes in great part ferruginous; the body rather sparsely clothed with erect blackish setæ and also with short decumbent pallid pubescence; the legs somewhat sparsely setose. Antennæ with joints 1 and 2 equal in length, 3 nearly twice as long as 2, 4 slightly shorter than 3. Pronotum with the base feebly sinuate on each side near the hind angles. Elytra longer than the abdomen in both sexes. Legs moderately stout, the femora feebly swollen before the tip.

♂. Terminal genital segment armed with two very long, stout, tapering, upwardly curved, divergent spines; the claspers long and stout, and abruptly bent inwards towards the tip.

♀. Posterior tibiæ sinuous before the apex, and with a dense brush of short bristly hairs on the upper edge beyond the middle; venter densely pilose.

Length $15\frac{1}{2}$–$19\frac{1}{2}$, breadth $5\frac{2}{3}$–$7\frac{1}{4}$ millim.

Hab. Mexico (*Boucard, in Mus. Holm.; coll. Signoret, in Mus. Vind. Cæs.*), Ciudad and Milpas in Durango (*Forrer*), Tepic (*Schumann*), Amula in Guerrero (*H. H. Smith*), Cuernavaca (*Bilimek, in Mus. Vind. Cæs.*).

Fourteen specimens. Very like *A. subpiceus*, Stål, but usually much darker in colour, and with the two spines at the apex of the terminal genital segment of the male much more elongate. These spines are longer than in any of the other species of the genus known to me; they are stout at the base and taper towards the tip. In the general shape of the terminal segment the present species agrees with *A. subpiceus*, both differing from *A. tristis* in this respect. The specimens belonging to the Vienna Museum were sent to me as *A. mœstus*, Stål; the one in the Stockholm Museum was separated as a distinct species.

11. **Apiomerus mœstus.** (Tab. XIV. figg. 19, ♀; 20, 20 *a*, last genital segment, ♂.)

Apiomerus mœstus, Stål, Stett. ent. Zeit. 1862, p. 455[1]; Enum. Hemipt. ii. p. 97[2] (nec Walk.).

Hab. Mexico (*Sallé, in Mus. Holm.*[1 2]); Guatemala, Purula in Vera Paz (*Champion*).

Found in plenty at Purula. The type (now before me) was probably from the Atlantic slope, from Vera Cruz or Tabasco. A rather small species, the males comparatively narrow, with the elytra extending far beyond the abdomen in both sexes. The corium usually has an irregular narrow transverse fascia towards the apex, and one or two of the inner nervures, ochreous, this colour sometimes extending over the greater portion, leaving the base and apex only dark. The basal margin of the pronotum is sometimes flavescent. The posterior tibiæ are in some specimens broadly ferruginous or testaceous in the middle. The apical joint of the antennæ is shorter than the third, and ferruginous at the tip. The males have two moderately long, divergent, upwardly-curved spines at the apex of the terminal genital segment; the claspers are long, strongly curved, and rather stout.

12. **Apiomerus venosus.** (Tab. XIV. figg. 21, ♀; 22, 22 *a*, last genital segment, ♂.)

Apiomerus venosus, Stål, Enum. Hemipt. ii. p. 97 [1].

Hab. Mexico (*Sallé, in Mus. Holm.* [1]), Cuernavaca in Morelos (*Bilimek, in Mus. Vind. Cæs.; H. H. Smith*), Chilpancingo and Soledad in Guerrero (*H. H. Smith*).

Eight specimens have been seen of this very distinct species, four of which were obtained by Mr. Smith. It is black, with the membrane in great part clear hyaline, its base only being infuscate; the nervures of the corium are either entirely pale or pale at the apex only. The antennæ are ferruginous or fusco-ferruginous, with the third and fourth joints subequal in length. The males have two long, widely separated, divergent, upwardly-curved spines at the apex of the terminal genital segment, the apical margin of this segment being thickly clothed with long hairs in the centre, and armed with a short tooth on each side opposite the points of insertion of the claspers; the latter are moderately long, rather stout, and abruptly bent inwards beyond the middle.

13. **Apiomerus rubrocinctus.** (Tab. XIV. fig. 23, var. *nigripes*, ♂.)

Apiomerus rubrocinctus, Herr.-Schäff. Wanz. Ins. viii. p. 76, t. 274. fig. 845 (1848) [1]; Stål, Enum. Hemipt. ii. p. 98 [2].

Apiomerus guttato-venosus, Stål, Rio Jan. Hemipt. p. 73 [3].

Apiomerus geniculatus, Stål, loc. cit. p. 73 [4].

Apiomerus nigripes, Stål, loc. cit. p. 73 [5]; Stett. ent. Zeit. 1862, p. 455 [6].

Apiomerus rufipes, Stål, Rio Jan. Hemipt. p. 73 [7].

Hab. ? Mexico (*coll. Signoret* [6], *in Mus. Vind. Cæs.*).—Brazil, Rio Janeiro [1–7].

The variety *nigripes* of this very variable Brazilian insect has been recorded by Stål from "Mexico," on the authority of a male specimen so labelled in the Signoret collection. This locality is almost certainly incorrect, like that of many other insects in the same collection. The present species differs from all the Central-American

forms in the rugose posterior lobe of the pronotum. The male has the two spines at the apex of the terminal genital segment moderately long, divergent, upwardly curved, and very widely separated, the apical margin of the segment being broadly truncate between them. The Signoret specimen is figured.

14. **Apiomerus emarginatus.** (Tab. XIV. figg. 24, ♂; 24 *a*, 24 *b*, 24 *c*, last genital segment, ♂.)

Apiomerus emarginatus, Stål, Enum. Hemipt. ii. p. 97 [1].

Hab. Panama (*Boucard*), Bugaba, Volcan de Chiriqui, Caldera, David, San Feliz, Tolé (*Champion*).—Colombia, Bogota [1].

Apparently a common insect in Chiriqui, whence we have obtained a large number of specimens, chiefly from the savanas of the "tierra caliente." It is a rather small, robust species, with stout, closely setose legs, and the intermediate and hind femora considerably swollen before the apex. The colour is very variable: the pronotum and corium (except at the tip), and the anterior legs in part, are flavo-testaceous in light-coloured specimens, the darkest individuals being almost entirely black. *A. emarginatus* differs from all the other Central-American forms in the laterally emarginate base of the pronotum, as well as in the very peculiar armature of the terminal genital segment in the male. In this sex the apex of the terminal segment is somewhat broadly produced in the centre and armed with two very long, upwardly curved, slightly divergent spines; the claspers are very long and sinuous, angularly dilated and closely ciliate on the inner side about the middle, and strongly curved beyond, the apical portion bearing a few very long setæ on the outer edge; at the base of these claspers on the inner side a second short curved pair is visible.

15. **Apiomerus spissipes.** (Tab. XIV. figg. 25, 25 *a*, last genital segment, ♂; 26, ♀, apex of the abdomen from behind.)

Reduvius spissipes, Say, Journ. Acad. Phil. iv. 2, p. 328 (1825) [1]; Amer. Ent. ii. t. 31. fig. (1825) [2]; Complete Writings, i. p. 72, t. 31. fig. 3 [3].

Apiomerus spissipes, Stål, Enum. Hemipt. ii. p. 98 [4]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 328 [5].

Hab. North America [1–3], Texas [4 5] (*Mus. Brit.*), Colorado [5], Arizona [5].—Mexico [4 5] (*Bilimek, in Mus. Vind. Cæs.*), Omilteme, Chilpancingo, and Amula in Guerrero, Cuernavaca in Morelos (*H. H. Smith*).

Sent to us from Western Mexico only. These specimens are extremely like some of the varieties of *A. pictipes*, and they are only separable therefrom by the very different form of the external genital armature of the males. They have the venter entirely black, or, rarely, with traces of transverse dirty yellowish lines at the sides; the connexivum in some of them is entirely black, or has the outer margin very narrowly pale; the pronotum rufous, with two broad transverse black fasciæ, which are

sometimes united along the middle of the disc; the corium rufous or reddish-ochreou with the apical margin narrowly ochreous. The males have the apex of the terminal genital segment broadly produced in the centre, and armed on each side with a moderately long, divergent, upwardly-curved spine, which is distinctly hooked at the tip (the armature resembling that of *A. subpiceus* and its allies, and very different from that of *A. pictipes*); the claspers are comparatively short, very abruptly bent inwards a little beyond the middle, and strongly curved at the apex. The females have the outer apical angles of the first genital segment deflexed and dilated into a subtriangular concave plate (this being much larger than in the same sex of *A. flaviventris* and *A. pictipes*); the terminal genital segment is strongly transverse. The single (♀) specimen from Omilteme has the pronotum black, with a small spot on each side of the posterior lobe in front and the anterior angles rufous, and the corium obscure rufo-piceous.

16. **Apiomerus crassipes.**

Reduvius crassipes, Fabr. Syst. Rhyng. p. 273 (1803)[1]; Say, Amer. Ent. ii. t. 31. fig. (1825)[2]; Complete Writings, i. p. 72, t. 31. fig. 4[3].

Apiomerus crassipes, Stål, Hemipt. Fabr. i. p. 117[4]; Enum. Hemipt. ii. p. 98[5]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 328[6].

Reduvius linitaris, Say, Descr. of New Sp. Hemipt. Heteropt. (New Harmony, Dec. 1831)[7]; Complete Writings, i. p. 355[8].

Herega rubrolimbata, Amy. et Serv. Hist. Nat. Ins. Hémipt. p. 354 (1868)[9].

Hab. North America[1–3 5 7 8 9], Canada[5], Nebraska, Kansas, Texas, and Atlantic region[6], Carolina[4].—Mexico (*Boucard, in Mus. Holm.; Bilimek, in Mus. Vind. Cæs.*, ♂; *Mus. Brit.*, ♀).

Five specimens from Mexico are referred to this species. They differ from the normal form of *A. spissipes* in having the pronotum black, with the basal margin flavous, the connexival margins more distinctly bordered with reddish or flavous, and the corium dark. This system of coloration, however, seems to be quite constant in the numerous North-American examples seen, except that the latter have the lateral and apical margins of the pronotum also reddish. The external genital structure in both sexes is similar to that of *A. spissipes*.

17. **Apiomerus flaviventris.** (Tab. XIV. figg. 27, ♂; 27 *a*, 27 *b*, last genital segment, ♂.)

Apiomerus flaviventris, Herr.-Schäff. Wanz. Ins. viii. p. 77, t. 274. fig. 847[1]; Stål, Enum. Hemipt. ii. p. 98[2]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 328[3].

Hab. North America, California, Arizona, New Mexico, and Texas[3].—Mexico[1 2], Alamos in Chihuahua (*Buchan-Hepburn*), Presidio de Mazatlan and Ventanas in Durango (*Forrer*), Tepic (*Schumann*).

This brightly-coloured species appears to be not uncommon in North-western

Mexico, whence we have received a good series of specimens. The pronotum is rufous, and usually has one or two transverse black fasciæ, the base being broadly flavous; the apex of the scutellum and the lower part of the propleura are broadly flavous; the corium is rufous, with the apical margin flavous; the connexival segments are flavous, banded with black; the venter (the genital segments excepted) is flavous, with some spots at the sides and the sutures very narrowly black; the legs are rufous, banded with black, there being usually a conspicuous rufous ring near the apices of the intermediate and hind femora; the head, membrane (when closed), and antennæ are black. The males have the apex of the terminal genital segment somewhat broadly produced in the centre, and armed on each side with a stout, horizontal, laterally extended, hooked spine; the claspers are long and stout, and strongly curved. The females have the outer apical angles of the first genital (terminal dorsal) segment deflexed at the sides, so as to form a triangular plate, and the last segment large and trapezoidal.

18. **Apiomerus pictipes.** (Tab. XIV. figg. 28, 29, ♂, vars.; 29 *a*, 29 *b*, last genital segment, ♂; 30, 31, ♀, vars.)

Apiomerus pictipes, Herr.-Schäff. Wanz. Ins. viii. p. 75, t. 273. figg. 843 A–G (1848)[1]; Stål, Enum. Hemipt. ii. p. 98[2] (nec Walk.).

Hab. MEXICO (*Mus. Brit.; coll. Signoret and Sichel, in Mus. Vind. Cæs.*), Presidio de Mazatlan (*Forrer*), Venta de Peregrino and Dos Arroyos in Guerrero, Teapa in Tabasco (*H. H. Smith*), Orizaba, Cuesta de Misantla (*M. Trujillo*), Atoyac (*Schumann*), Jalapa (*Höge*), Valladolid and Temax in N. Yucatan (*Gaumer*), Tabi in Yucatan (*F. D. G.*); BRITISH HONDURAS, R. Sarstoon (*Blancaneaux*); GUATEMALA (*ex Uhler*), San Gerónimo and Tocoy in Vera Paz, El Reposo, Dueñas (*Champion*); NICARAGUA, Chontales (*Janson*); PANAMA (*Boucard*), Bugaba, Volcan de Chiriqui, David, Tolé (*Champion*); CENTRAL AMERICA [1].—COLOMBIA, Bogota [2], Cartagena [2].

A very variable and abundant species within our limits. Some of the Yucatan specimens are only separable from *A. flaviventris* by their slightly smaller size and the broader black bands across the ventral segments. The genital spines and claspers are similarly formed in the males of each species; the females, however, have the sides of the first genital segment more narrowerly deflexed than in the corresponding sex of *A. flaviventris*. The large number of specimens received from Yucatan have the corium (except at the apex), and the pronotum more or less (except at the base), dark, and the ventral segments broadly banded with pale flavous. Most of the other Mexican examples, as well as those from Guatemala &c., resemble Herrich-Schäffer's figure. The Panama specimens have the corium and the posterior lobe of the pronotum sordid ochreous. The ventral segments vary greatly in colour, but in the darkest specimens there are traces at the sides of transverse yellow lines. The six males dissected show not the slightest variation in the form of the genital spines or claspers.

Subfam. *HARPACTORINÆ.*

This subfamily, the Reduviina of Stål, is the most numerous in species of any of the groups of the Reduviidæ, Lethierry and Severin enumerating 717 species and 137 genera as belonging to it. Some of the species of *Milyas*, *Zelus*, *Repipta*, *Ricolla*, &c. are common insects within our limits.

MILYAS.

Milyas, Stål, Rio Jan. Hemipt. ii. p. 61 (1862); Öfv. Vet.-Ak. Förh. xxiii. p. 295 (1866); Enum. Hemipt. ii. pp. 69, 86.

This genus seems to have its head-quarters in Central America, whence ten species are now recorded, two only of the four described forms occurring apparently within our limits, the others inhabiting Brazil and the United States respectively. Some of them, like the *Apiomeri*, are very variable in size and colour, and these can only be satisfactorily separated by the form of the terminal genital segment of the males. In *M. zebra* and its allies this segment is produced in the centre at the apex and armed with a deeply sulcate process, which has the appearance of being formed of two connate, slender spines. In *M. inermis*, *M. punctipes*, and *M. nigropictus* the dentiform or spiniform process is simple. The outer and inner genital lobes of the males also vary in form according to the species.

a. Femora speckled and annulated with black; posterior lobe of the pronotum tuberculate or granulate.
  a'. Lateral angles of the pronotum with a long spine, the anterior lobe with eight long spines: form elongate, narrow . . . . . *punctipes*, A. & S.
  b'. Lateral angles of the pronotum with a short, stout, backwardly-directed tooth: form rather short and broad.
    a''. Anterior lobe of the pronotum with twelve short spines; antennæ with joints 2 and 3 subequal in length . . . . . *spinicollis*, n. sp.
    b''. Anterior lobe of the pronotum simply tuberculate; antennæ with joint 3 longer than 2 . . . . . *tuberculatus*, n. sp.
b. Femora simply annulated with black.
  c'. Lateral angles of the pronotum tuberculate or nodose, the anterior angles with a short tooth, the base strongly bisinuate in the middle; scutellum broadly foliaceous at the apex . . . . . *inermis*, n. sp.
  d'. Lateral and anterior angles of the pronotum each with a short tooth, the base feebly bisinuate or subtruncate in the middle; scutellum broadly foliaceous at the apex.
    c''. ♂ with the apex of the last genital segment produced in the middle and armed with a long or moderately long sulcate spine, the genital lobes narrow; the head with a pale spot between the ocelli.
      a'''. Pronotum with the posterior lobe reddish or stramineous, or with spots of that colour, the tooth at the lateral angles black . . *zebra*, Stål.

b'''. Pronotum black or piceous, with the basal margin and some spots on the anterior lobe pale . . . . . *infuscatus*, n. sp.

c'''. Pronotum rufous, the tooth at the lateral angles included, the basal margin pale . . . . . *rufofasciatus*, n. sp.

d''. ♂ with the apex of the last genital segment not produced in the middle, and armed with a short, slender spine.

d'''. Head with a pale spot between the ocelli; ♂ with the genital lobes strongly clubbed at the tip . . . . . *mexicanus*, n. sp.

e'''. Head with a pale spot between the ocelli and a pale median line extending from it to the base; ♂ with the genital lobes very slender . . . . . *lineaticeps*, n. sp.

e'. Lateral angles of the pronotum with a rather long, slender, outwardly directed spine, the anterior angles with a long tooth, the base subtruncate in the middle; scutellum narrowly foliaceous at the apex . *nigropictus*, n. sp.

1. **Milyas punctipes.** (Tab. XV. figg. 1, 1 *a*, ♂; 1 *b*, last genital segment, ♂.)

Sinea punctipes, Amy. et Serv. Hist. Nat. Ins. Hémipt. p. 376[1].

Milyas punctipes, Stål, Stett. ent. Zeit. 1862, p. 449[2]; Enum. Hemipt. ii. p. 87[3].

Hab. Mexico[2 3], Tierra Colorada in Guerrero (*H. H. Smith*), Temax in N. Yucatan (*Gaumer*); Guatemala, San Gerónimo (*Champion*); Nicaragua, Chontales (*Janson*); Panama, Bugaba, Volcan de Chiriqui, David (*Champion*).—Guiana, Cayenne[1].

Not rare in Yucatan and Chiriqui. Fresh specimens have the head, the anterior lobe of the pronotum, the scutellum, and abdomen more or less suffused with rufous. The third antennal joint is about twice as long as the second. The males have a short spine at the apex of the terminal genital segment and slender genital lobes.

2. **Milyas spinicollis,** n. sp. (Tab. XV. figg. 2, 2 *a*, ♀.)

♀. Broad, obovate, finely pubescent and also clothed with long erect hairs; stramineous, the anterior lobe of the pronotum and the base of the scutellum reddish, the dorsal surface of the abdomen tinged with sanguineous: the head in great part black above, with a small spot between the eyes and a median line down the post-ocular portion stramineous; the pronotum with the inner spines on the anterior lobe black, and the posterior lobe, the basal margin excepted, slightly infuscate, with the tubercles and the lateral teeth infuscate or black; the elytra dilute fuscous; the connexivum broadly banded with black, the mesosternum and the sides of the ventral segments 1–3 also black; the antennæ with joints 1 and 2 black, 1 quadriannulated with stramineous, 2 with a stramineous median ring, 3 and 4 obscure ferruginous; the basal joint of the rostrum and the tibiæ narrowly annulated, and the femora speckled and annulated, with black. Head much shorter than the pronotum, armed above with two small conical tubercles on each side before the eyes; antennæ moderately long, slender, joint 1 about one-half longer than 2, 2 and 3 subequal, 4 shorter than 3. Pronotum moderately constricted at the sides; the anterior lobe armed with six short spines on each side of the median groove and with a rather long spine at the anterior angles; the posterior lobe studded with scattered conical setiferous tubercles, the base feebly bisinuate in the middle and with a narrow reflexed margin at the sides, the lateral angles armed with a short, stout, blunt, backwardly directed tooth. Scutellum with the apex rounded and foliaceous. Connexivum broad, rounded externally. Venter smooth. Legs rather short.

Length $9\frac{3}{4}$; breadth of the pronotum $2\frac{4}{5}$, of the abdomen $3\frac{2}{3}$ millim.

Hab. Mexico (*coll. Signoret, in Mus. Vind. Cæs.*).

One example. Allied to *M. punctipes*, but much broader; the pronotum with

twelve short spines (instead of eight very long ones) on the anterior lobe, a short blunt, posteriorly directed tooth at the lateral angles, and the basal margin narrowly reflexed; the scutellum more broadly foliaceous at the apex; the third antennal joint not longer than the second. The tibiæ are annulated with black to the apex.

3. **Milyas tuberculatus,** n. sp. (Tab. XV. figg. 3, 3 *a*, ♀.)

♀. Broad, obovate, finely pubescent and also clothed with long erect hairs; fusco-testaceous, the head black above, except at the sides between the eyes; the pronotum with the tubercles on the anterior lobe and a patch at the hind angles black, and the basal margin stramineous; the elytra and the raised portion of the scutellum fuscous; the connexival segments each with a large black patch; the under surface testaceous, the pleura and sterna spotted with black; the antennæ with joints 1 and 2 black, 1 quadri-annulated with flavous, 2 with a flavous median ring, the others ferruginous; the legs stramineous, the femora speckled and annulated with black, the tibiæ narrowly triannulated with black at the base; the rostrum stramineous, the basal joint spotted with black. Head broad, much shorter than the pronotum, tuberculate above; antennæ rather short, joint 1 about twice as long as 2, 2 much shorter than 3 (4 broken). Pronotum with the anterior lobe coarsely tuberculate and with a short stout tooth at the anterior angles; the posterior lobe considerably dilated at the sides, sparsely granulate on the disc, the lateral angles armed with a short, stout, blunt, backwardly directed tooth; the basal margin reflexed, sinuate on each side and also feebly bisinuate in the centre. Scutellum with the apex rounded and slightly foliaceous. Connexivum broad, rounded externally. Legs rather short.

Length $11\frac{1}{4}$; breadth of the pronotum $3\frac{1}{2}$, of the abdomen $4\frac{1}{2}$ millim.

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

One example. Near *M. spinicollis*, but broader, with tubercles (instead of spines) on the anterior lobe of the pronotum, the lateral angles armed with a longer and stouter tooth; the tibiæ annulate at the base only.

4. **Milyas inermis,** n. sp. (Tab. XV. figg. 4, ♂; 4 *a*, last genital segment, ♂.)

Rather broad, moderately elongate, sparsely pilose; stramineous, the abdomen and legs with a reddish tinge in fresh examples; the head black above, with a small spot between the ocelli, an oblique mark on each side before the eyes, and the anterior portion in part, stramineous; the pronotum with the anterior lobe variegated with black (leaving a spot at the sides, two vittæ on the disc, and the anterior angles pale), the posterior lobe, the basal margin excepted, slightly infuscate, the hind angles with a small black spot; the scutellum blackish at the sides below the base; the elytra fuscous or fusco-testaceous; the connexivum banded with black; the ventral sutures very narrowly, and some small spots on the pleura, black; the antennæ with joints 1 and 2 black, 1 triannulated with stramineous, 2 with a stramineous median ring, 3 and 4 ferruginous; the femora narrowly, and the basal halves of the tibiæ and the basal joint of the rostrum more broadly, annulated with black. Head moderately broad; antennæ with joint 1 about twice as long as 2, 2 and 4 subequal, 3 much longer than 2. Pronotum smooth, the anterior lobe sulcate down the middle and with a short stout tooth at the anterior angles, the lateral angles tuberculate or nodose; the base strongly bisinuate in the middle and also deeply sinuate at the sides, the margin rather broad and reflexed. Scutellum with the apex rounded and strongly foliaceous. Connexivum rather broad. Legs moderately elongate.

♂. Terminal genital segment armed with a stout tooth of variable length, the genital lobes long and very slender.

Length $11\frac{1}{2}$–13, breadth of the abdomen 4–$4\frac{1}{4}$ millim. (♂ ♀.)

Hab. MEXICO, Chilpancingo in Guerrero, Cuernavaca in Morelos (*H. H. Smith*).

Var. The head above, a small spot between the ocelli excepted, the pronotum and pleura in great part, and the sides of the venter broadly, a row of spots excepted, black, the corium sordid ochreous. (♀.)

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*).

Eight examples of the typical form and one of the variety. Easily separable fro all the other species of the genus by the simply tuberculate or nodose lateral angles of the pronotum, the pronotum with its basal margin strongly bisinuate in the middle. In the Chihuahua specimen there are four pale spots extending across the posterior lobe of the pronotum in front and five others along the basal margin.

Allied to the North-American *M. cinctus* (Fabr.), but with the tooth at the lateral angles of the pronotum very short or obsolete, the base of the latter strongly bisinuate opposite the scutellum, &c.

5. **Milyas zebra.** (Tab. XV. figg. 5, ♂; 5 *a*, last genital segment, ♂; 6, ♂, 7, ♂, vars.)

Milyas zebra, Stål, Stett. ent. Zeit. 1862, p. 448[1]; Enum. Hemipt. ii. p. 87[2]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 328[3]; Proc. Calif. Acad. Sci. (2) iv. p. 283[4].

Harpactor cinctus, Walk. Cat. Hemipt. Heteropt. viii. p. 97 (part.)[5].

Hab. North America, Upper[3] and Lower California[4]. — Mexico[1 2 3] (*Bilimek, in Mus. Vind. Cæs.; Sallé*), Chilpancingo and Amula in Guerrero, Cuernavaca in Morelos (*H. H. Smith*), Orizaba (*Mus. Brit.*[5]; *H. H. Smith*), Jalapa (*Godman*), Mexico city (*Schumann*), Oaxaca (*Mus. Brit.*[5]).

Var. *α*. Posterior lobe of the pronotum black, with two large spots on the disc, the sides in front, and the basal margin, a space towards the sides excepted, stramineous. (♂ ♀.) (Fig. 6.)

Hab. Mexico, Milpas in Durango, Xautipa and Xucumanatlan in Guerrero (*H. H. Smith*).

Var. *β*. The anterior lobe of the pronotum narrowly variegated with black or entirely pale, the lateral spines, and sometimes a spot or streak behind them, black; the elytra testaceous; the legs narrowly annulated with black; the tooth at the lateral angles of the pronotum pointed at the tip. (♂ ♀.)

Hab. Guatemala, Aceituno (*Salvin*), San Juan and San Gerónimo in Vera Paz, Guatemala city, Las Mercedes (*Champion*); Honduras (*Wittkugel, in Mus. Vind. Cæs.*).

Var. *γ*. The anterior lobe of the pronotum narrowly variegated with black, the posterior lobe with the lateral teeth, a streak behind them, and sometimes a spot on each side of the disc before the base, black; the elytra testaceous; the tooth at the lateral angles of the pronotum blunt at the tip. (♂ ♀.) (Fig. 7.)

Hab. Panama, Volcan de Chiriqui (*Champion*).

A common Central-American insect, separable in all its varieties from the North-American *M. cinctus* (Fabr.) by the longer and deeper sulcus on the disc of the pronotum, and the sulcate spine at the apex of the last genital segment in the males. The markings on the pronotum are variable, the black sometimes (in the typical form and in the var. *α*) predominating so as to enclose pale spots on the posterior lobe, and sometimes becoming almost obsolete; the lateral teeth are, however, always black. The second pale ring on the first antennal joint is frequently obsolete or indistinct. The posterior lobe of the pronotum, except at the base, the scutellum, and connexivum are often suffused with red. The pleura and the sides of the venter are each marked

with a row of tomentose white spots. The males have the apex of the last genital segment produced in the middle and armed with a sulcate, pointed spine of variable length; the outer genital lobes are narrow and the short inner lobes blunt at the tip. Our specimens vary from $10\frac{1}{2}$–15 millim. in length.

6. **Milyas infuscatus,** n. sp.

Elongate, rufo-testaceous or reddish-ochreous, pilose; the head with a spot between the ocelli, two oblique marks between the eyes, and a spot in front, reddish; the pronotum piceous or black, with the anterior angles, some marks on the anterior lobe, and the basal margin, except for a short space towards the sides and in one specimen a spot on each side near the lateral angles and another on the disc behind, reddish; the base of the scutellum and the elytra piceous or black, the membrane smoky; the abdomen above and beneath broadly banded with black, the black in some specimens so extended on the venter as to enclose four rows of large transverse spots of the ground-colour, the pleura also spotted with black; the antennæ with joints 1 and 2 black, 1 triannulated with rufo-testaceous, 2 with a reddish median ring, 3 and 4 obscure ferruginous; the legs and the basal joint of the rostrum broadly annulated with black; the pleura and the sides of the venter each with a row of tomentose white spots. Head moderately long; antennæ with joint 1 about twice as long as 2, 2 and 4 subequal, 3 much longer than 2. Pronotum smooth, deeply sulcate down the centre from the middle of the posterior lobe to the apex, the anterior and lateral angle each armed with a short tooth; the reflexed basal margin sinuate on each side. Scutellum with the apex strongly foliaceous. Legs moderately elongate.

♂. Terminal genital segment produced in the middle at the apex and armed with a rather long stout spine, which is deeply sulcate down the middle and blunt at the tip; the genital lobes moderately stout, the short inner lobes somewhat angular at the tip.

Length 13–14, breadth of the pronotum $3\frac{1}{4}$–$3\frac{3}{4}$ millim. (♂ ♀.)

Hab. GUATEMALA, Zapote, Capetillo, Dueñas (*Champion*), Guatemala city (*Salvin*).

Nine specimens, most of which are in a bad state of preservation. *M. infuscatus* is probably an extreme form of the very variable *M. zebra*, but as it appears to be localized in Guatemala I have ventured to name it. In some examples the black markings on the venter are so extended as to enclose four series of large transverse pale spots.

7. **Milyas rufofasciatus,** n. sp. (Tab. XV. figg. 8, ♂; 8 *a*, last genital segment, ♂.)

Elongate, pilose, pale stramineous; the head maculated with black above, the post-ocular portion black, the sides in front and a spot between the ocelli excepted; the anterior lobe of the pronotum faintly variegated with black, the posterior lobe with a broad rufous band—extending from the apex to near the base, to the lateral spines, and also on to the pleura; the elytra testaceous, with the membrane subhyaline; the abdomen above and beneath narrowly banded with black; the antennæ with joints 1 and 2 black, 1 quadriannulated with stramineous, 2 with a stramineous median ring, 3 and 4 ferruginous; the basal joint of the rostrum and the legs narrowly annulated with black; the pleura and the sides of the ventral segments each with a row of small tomentose white spots, the head with an oblique fascia of white hairs on each side behind the ocelli. Head moderately long; antennæ with joint 1 about twice as long as 2, 2 and 4 equal, 3 much longer than 2. Pronotum smooth, sulcate down the middle from the centre of the posterior lobe to the apex; the anterior angles armed with a short stout tooth, the lateral angles with a short outwardly directed spine; the base with the reflexed margin slightly sinuate and forming a rather prominent lobe on each side of the median emargination. Scutellum with the apex rounded and strongly foliaceous. Legs moderately elongate.

♂. Terminal genital segment produced in the middle at the apex and armed with a long, stout, pointed spine, which is deeply sulcate down the middle; the genital lobes rather slender and slightly sinuous, the short inner lobes somewhat angular at the tip.

Length 13–13½, breadth 3¼–3½ millim. (♂ ♀.)

Hab. MEXICO, Tacubaya (*Bilimek, in Mus. Vind. Cæs.; Sallé*), Amula in Guerrero (*H. H. Smith*).

This is one of several closely allied forms, the males of which have a long, stout, sulcate spine at the apex of the last genital segment. The five specimens seen agree exactly in coloration, the insect differing in this respect from all others of the genus. The posterior lobe of the pronotum, the lateral spines included, is rufous to near the base, this colour extending on each side down the pleura.

8. **Milyas mexicanus,** n. sp. (Tab. XV. figg. 9, ♂; 9 *a*, last genital segment, ♂.)

Elongate, pilose, stramineous, the legs, abdomen, and pronotum suffused with ochreous; the head black above, with a small spot between the ocelli and another in front, and in one specimen some marks on each side between the eyes, stramineous; the pronotum with a rather broad transverse fascia before the base, extending to the lateral spines, the longitudinal medium sulcus, and the disc of the anterior lobe, except four transversely placed spots, black; the scutellum black at the base; the elytra fuscous, or fusco-testaceous; the abdomen above and beneath, and the basal joint of the rostrum, banded with black; the antennæ with joints 1 and 2 black, 1 narrowly tri- or quadriannulated with stramineous, 2 with a pale median ring, 3 and 4 obscure ferruginous; the legs rather broadly annulated with black; the pleura and the sides of the ventral segments each with a row of tomentose white spots. Head moderately long; antennæ with joint 1 about twice as long as 2, 2 and 4 subequal, 3 much longer than 2. Pronotum smooth, sulcate down the centre from the middle of the posterior lobe to the apex; the anterior angles armed with a short, stout tooth, the lateral angles with a short outwardly directed spine; the base feebly bisinuate in the middle, the reflexed margin rather prominent and slightly sinuate towards the sides. Scutellum with the apex strongly foliaceous. Legs rather stout, moderately elongate.

♂. Terminal genital segment armed with a short slender spine; the genital lobes stout, clubbed, the short inner lobes rounded at the tip, both clothed with numerous long hairs.

Length 11–14, breadth 3–3½ millim.

Hab. MEXICO, Ventanas in Durango (*Forrer*), Tepic (*Schumann*).

Two males. Very like *M. zebra*, and, like it, with a sulcate spine at the apex of the last genital segment in the male; the genital lobes, however, in this sex are stout and clubbed at the tip.

9. **Milyas lineaticeps,** n. sp. (Tab. XV. figg. 10, ♂; 10 *a*, last genital segment, ♂.)

Moderately elongate, sparsely pilose, pale stramineous; the head with the post-ocular portion variegated with black, the black markings enclosing a diamond-shaped spot between the ocelli and a median line running down from it to the base, the ante-ocular portion with a subquadrate black mark in the centre; the anterior lobe of the pronotum variegated with rufo-testaceous, the lateral spines black, the basal margin in one specimen marked with black near the hind angles; the abdomen above and beneath, and the basal joint of the rostrum, banded with black; the elytra testaceous, the membrane subhyaline; the antennæ with joints 1 and 2 black, 1 broadly quadriannulated with stramineous, 2 with a narrow basal and a broader median stramineous ring, 3 and 4 ferruginous; the legs narrowly annulated with black. Head moderately long; antennæ with joint 1 about twice as long as 2, 2 and 4 subequal, 3 one-half longer

than 2. Pronotum smooth, sulcate down the centre from the middle of the posterior lobe to the apex; the anterior angles armed with a short, stout tooth, the lateral angles with a short outwardly directed spine; the base subtruncate in the centre, the reflexed margin sinuate and forming a short lobe on each side of the emargination. Scutellum with the apex rounded and strongly foliaceous. Legs moderately long.

♂. Terminal genital segment armed with a short slender sulcate spine; the genital lobes very slender.

Length $10\frac{1}{2}$–11; breadth of the pronotum 3, of the abdomen $2\frac{3}{4}$–$3\frac{3}{4}$ millim. (♂ ♀.)

Hab. MEXICO, Ventanas in Durango (*Forrer*).

One male and two females, agreeing precisely in colour. This species is chiefly distinguishable by the pallid coloration, the clearly biannulate second antennal joint, the peculiar markings of the head (which are constant), the narrowly annulate legs, and the very slender short spine at the apex of the last genital segment in the male. It is perhaps yet another form of *M. zebra*.

10. **Milyas nigropictus,** n. sp. (Tab. XV. figg. 11, ♂; 11 *a*, last genital segment, ♂.)

Elongate, rather narrow, sparsely pilose, pale stramineous; the head black above, with a small spot between the ocelli and some marks between and before the eyes pale stramineous; the pronotum with the anterior lobe variegated with black (a spot at the sides, some oblique marks on the disc, and the anterior angles remaining pale), the lateral spines and sometimes a spot or streak behind them, and, rarely, an interrupted transverse fascia before the base, black; the scutellum fuscous at the sides below the base; the elytra dilute fuscous; the connexivum banded with black; the sides of the venter more or less, and the sutures laterally, as well as the pleura in part, marked with black; the antennæ with joints 1 and 2 black, 1 quadriannulated with stramineous, 2 with a median ring and the apex very narrowly stramineous, 3 and 4 ferruginous; the basal joint of the rostrum, the femora, and the basal halves of the tibiæ narrowly annulated with black; the pleura and the sides of the venter each with a row of tomentose white spots, the basal portion of the head, the posterior lobe of the pronotum in front, and the scutellum with similar spots or streaks. Head moderately long; antennæ with joint 1 about twice as long as 2, 2 and 4 subequal, 3 much longer than 2. Pronotum smooth, sulcate down the centre from the middle of the posterior lobe to the apex; the anterior angles with a long tooth; the lateral angles with a long, slender, outwardly directed spine; the base subtruncate at the middle and sinuate at the sides, the margin rather broad and reflexed. Scutellum with the apex narrowly foliaceous. Legs moderately elongate.

♂. Terminal genital segment armed with a short tooth; the genital lobes slender, with a long curved bristly hair at the tip.

Length $9\frac{1}{2}$–$10\frac{1}{4}$, breadth $2\frac{1}{2}$–3 millim. (♂ ♀.)

Hab. MEXICO, Dos Arroyos in Guerrero, Atoyac in Vera Cruz, Teapa in Tabasco (*H. H. Smith*), San Lorenzo, near Cordova (*M. Trujillo*).

Twelve specimens, one only of which is a male. Distinguishable by the long slender spine at the lateral angles of the pronotum, resembling that of *M. punctipes*, but less elongate; the scutellum is also narrowed at the apex, as in that insect. In fresh examples there is a row of conspicuous spots of white tomentum down the pleura and sides of the venter, as well as others on the head, pronotum, and scutellum.

ZELUS.

Zelus, Fabricius, Syst. Rhyng. p. 281 (1803) (part.); Stål, Enum. Hemipt. ii. pp. 70, 88.
Euagoras, Burmeister, Handb. der Ent. ii. p. 226 (1839) (part.).
Evagoras, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 368 (1843).
Diplodus, Amyot et Serville, loc. cit. p. 370; Stål, Öfv. Vet.-Ak. Förh. 1866, p. 296.
Pindus, Stål, Stett. ent. Zeit. 1862, p. 454; Öfv. Vet.-Ak. Förh. 1866, p. 296.

An American genus, as restricted by Stål, ranging from Canada to the Argentine Republic, but chiefly confined to the tropics. Lethierry and Severin enumerate fifty-two species as belonging to it, but several of the names represent nothing more than varieties. Eighteen species are here recorded from within our limits, eight of these being treated as new. Some of them are extremely variable in colour, and one of the characters used by Stål, viz. the relative length of the basal joint of the antennæ, cannot be depended upon. The males of most of the species have the third antennal joint thickened, and the last genital segment armed with a process or spine at the apex. The females in some cases have the hind tibiæ swollen on the inner side below the base (*Z. janus*), and in others the intermediate femora are slightly modified in form (*Z. inconstans* and *Z. fasciatus*). The species of this genus may be easily separated from the numerous allied forms by the elongate second joint of the rostrum.

a. Lateral angles and disc of the pronotum unarmed. [Zelus, Fabr., Stål.]
  a'. Body more or less robust.
    a''. Legs moderately slender.
      a'''. Pronotum with a single black patch on the disc; femora with two stramineous rings, those on the anterior pair sometimes obsolete . . . . . *rubidus*, Lep.
      b'''. Pronotum with three black patches on the disc; intermediate and hind femora with a single stramineous ring . . . . . *trimaculatus*, n. sp.
    b''. Legs very slender; pronotum variable in colour, the femora more or less annulated with flavous . . . . . *inconstans*, n. sp.
  b'. Body narrow.
    c''. Head elongate, gradually narrowed towards the base.
      c'''. Legs speckled and annulated with black . . . . . *pictipes*, n. sp.
      d'''. Legs entirely pale . . . . . *cervicalis*, Stål.
    d''. Head comparatively short, strongly narrowed towards the base; legs pale . . . . . *pallens*, H.-S.
b. Lateral angles of the pronotum armed with a spine or tooth, the disc unarmed. [Diplodus, Amy. et Serv.]
  c'. Head rufous or sanguineous; the pronotum with one or two transverse black fasciæ.
    e''. Body more or less robust; legs partly testaceous or sanguineous.
      e'''. Lateral spines of the pronotum sharp; femora testaceous at the base . . . . . *ruficeps*, Stål.

f'''. Lateral spines of the pronotum very short or indistinct; femora at the base, the connexivum, and venter, more or less sanguineous . . . . . *grassans*, Stål.

f''. Body narrow; legs entirely black; lateral spines of the pronotum slender . . . . . *fasciatus*, n. sp.

d'. Head testaceous or stramineous, usually with darker markings.

g''. Anterior lobe of the pronotum with numerous smooth black spots on the disc separated by sinuous lines of pubescence; third antennal joint slender in both sexes; posterior tibiæ tumid before the middle within in the ♀: size large . . . . . *janus*, Stål.

h''. Anterior lobe of the pronotum without black spots on the disc (fasciate in front in *Z. nigromaculatus*); third antennal joint thickened in the ♂*; posterior tibiæ simple in the ♀.

g'''. Pronotum sulcate down the centre from the apex to the middle of the posterior lobe; body pilose and pubescent, robust, the legs stout . . . . . *sulcicollis*, n. sp.

h'''. Pronotum with the anterior lobe only sulcate.

*a*⁴. Body very broad and robust, testaceous, the legs and antennæ almost entirely black . . . . . *atripes*, n. sp.

*b*⁴. Body moderately broad or narrow.

*a*⁵. Head, pronotum, and scutellum testaceous, fuscous, or nigro-fuscous, the femora sometimes with a darker ring at the apex.

*a*⁶. Lateral angles of the pronotum armed with a rather stout acute spine, the posterior lobe rugulose . . . . . *exsanguis*, Stål.

*b*⁶. Lateral angles of the pronotum armed with a very short tooth, the posterior lobe almost smooth . . . . . *lævicollis*, n. sp.

*c*⁶. Lateral angles of the pronotum armed with a short slender spine, the posterior lobe rugulose.

*a*⁷. Legs pale . . . . . *nugax*, Stål.

*b*⁷. Legs darker and more slender . . . . . *mimus*, Stål.

*b*⁵. Head, pronotum, scutellum, and femora flavous, the head and pronotum with fuscous or black markings, the femora broadly annulated with black; the lateral angles of the pronotum armed with a long acute spine . . . . . *nigromaculatus*, n. sp.

c. Lateral angles of the pronotum armed with a sharp spine, the disc with two spines. [PINDUS, Stål.] . . . . . *tetracanthus*, Stål.

1. Zelus rubidus.

Le Punaise-Mouche, à rayes jaunes, Stoll, Représ. des Punaises, p. 143, t. 36. fig. 258 (1788)[1].
Reduvius rubidus, Lepel. et Serv. Encycl. Méth. x. p. 278 (1825)[2].
Evagoras rubidus, Amy. et Serv. Hist. Nat. Ins. Hémipt. p. 368[3].

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* In the species of which the males are known.

Reduvius (*Evagoras*) *rubidus*, Guér. in Sagra's Hist. fis., polit. y nat. de Cuba, Ins. p. 172[4].
Zelus rubidus, Stål, Enum. Hemipt. ii. p. 89[5].
Euagoras speciosus, Burm. Handb. der Ent. ii. p. 227 (1835)[6]; Herr.-Schäff. Wanz. Ins. viii. p. 45, t. 264. fig. 818 (nec 817)[7].
Zelus speciosus, Stål, Enum. Hemipt. ii. p. 89[8]; Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 283[9].
Euagorus tricolor, Herr.-Schäff. Wanz. Ins. viii. p. 45, t. 264. fig. 817 (nec 818)[10].
Zelus longipes, Stål, Stett. ent. Zeit. 1862, p. 449 (part.)[11].
Euagoras longipes, Walk. Cat. Hemipt. Heteropt. viii. p. 117 (part.)[12].
Velia agavis, Blasquez, La Naturaleza, i. pp. 289, 290, tab. fig. 14 (1870)[13].
Zelus stolli, Leth. et Sev. Cat. gén. Hémipt., Hétéropt. iii. p. 153[14].

Hab. North America, Lower California[9].—Mexico[6 8 10 11 12 13] (*Sichel, in Mus. Vind. Cæs.; Sallé*), Tampico in Tamaulipas (*Richardson*), Ciudad in Durango, Presidio de Mazatlan (*Forrer*), Cuernavaca, Atoyac, Medellin (*H. H. Smith*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Jalapa (*Höge*), Tabi in Yucatan (*Godman*), Temax in N. Yucatan (*Gaumer*); Guatemala, Teleman and San Juan in Vera Paz, El Tumbador, Las Mercedes, Cerro Zunil, Capetillo, Dueñas, Guatemala city (*Champion*); Honduras (*Dyson*[12]); Costa Rica, Volcan de Irazu (*Rogers*); Panama, Volcan de Chiriqui (*Champion*).—Colombia[8]; Venezuela; Guiana[1]; Antilles, San Domingo[2 3 5], Cuba[2 3 4 5 7].

Var. The clavus and corium entirely black.

Hab. Mexico, Tacubaya (*Bilimek, in Mus. Vind. Cæs.*), Cuernavaca (*H. H. Smith*).

Var. The clavus and corium, the narrow produced apical portion of the latter excepted, ochreous.

Hab. Mexico, Presidio de Mazatlan (*Forrer*).

A common insect throughout our region, and perhaps not really distinct from *Z. longipes* (Linn.), from the Island of St. Thomas. It is very variable in colour, according to the predominance of the light or dark colour on the head, pronotum, and elytra; the two forms noticed above are not mentioned by Stål. The antennæ are black, sometimes with one or two pale rings on the basal joint. The legs are black, with two conspicuous pale rings on each of the femora, which, however, are occasionally indistinct. The males have the third antennal joint slightly thickened to beyond the middle, and the terminal genital segment armed with a slender, upwardly curved spine at the apex.

The North-American *Z. bilobus*, Say, a specimen of which from Texas is before me, has a longer head and pronotum, and the femora almost entirely black *.

About 100 examples of *Z. rubidus* have been examined, including one of Stål's specimens from Cuba.

* Prof. Uhler (Bull. U.S. Geol. & Geogr. Surv. i. p. 327) records this species from Mexico, possibly in error.

2. **Zelus trimaculatus,** n. sp. (Tab. XV. fig. 12, ♀.)

♀. Elongate, comparatively broad, opaque above, clothed with very short pubescence and widely scattered fine hairs, the pubescence on the pronotum dark and erect, and forming sinuous lines on the anterior lobe; head ferruginous, with two black posteriorly coalescent vittæ on the ante-ocular portion, the post-ocular portion black, with a reddish median line; pronctum sanguineous, with three large black, partly coalescent, patches on the posterior lobe—the median one extending from the base to the transverse groove and narrowing forwards, the others not reaching the base, but extending forwards to the transverse groove and downwards to the lower margin,—the anterior lobe reticulated with fuscous, the anterior angles black; scutellum ochreous; elytra black, the corium with a broad, interiorly narrowing, transverse ochreous fascia a little before the apex, the membrane greenish-violaceous; wings violaceous; beneath and the connexivum sanguineous, fading to ochreous, the abdomen black at the apex, the pleura with some black marks at the sides, the ventral segments with narrow black fasciæ; antennæ and legs black, the intermediate and hind femora each with a flavous median ring; rostrum black, with the first joint partly ferruginous. Head comparatively small and narrow, shorter than the pronotum; antennæ very slender, joint 1 as long as the head and pronotum united; pronotum trapezoidal, rapidly narrowing from the rounded hind angles; the anterior lobe very short, deeply sulcate down the middle; the anterior angles tuberculiform and not prominent; the posterior lobe flattened on the disc; the basal margin narrowly reflexed. Elytra extending to far beyond the abdomen. Legs sparsely pilose, very long and slender, all the femora thickened at the base, the anterior pair fully as long as the hind pair.

Length $17\frac{1}{2}$, breadth 5 millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

One example. This handsome species is allied to *Z. iopterus* (Perty), *Z. trimaculicollis*, Stål, and *Z. means*, Fabr., all of which inhabit tropical South America.

3. **Zelus inconstans,** n. sp. (Tab. XV. fig. 13, ♀.)

Elongate, narrow, shining, sparsely pubescent; very variable in colour—(1) black, with the ventral segments 1–4 sanguineous, (2) black, with the posterior lobe of the pronotum and the scutellum ochreous, and the middle of the venter and the connexival margins flavous, (3) black, with the scutellum and a broad posteriorly widened vitta on the disc of the posterior lobe of the pronotum rufo-testaceous, and the middle of the venter and the connexival margins flavous, (4) rufo-testaceous, with the head black and the abdomen in great part sanguineous; the antennæ, rostrum, and legs black, the anterior femora usually pale towards the base or with a flavous median ring, the other femora with 1–3 flavous or reddish rings; the elytra nigro-fuscous or black, the membrane and wings smoky. Head nearly as long as the pronotum, narrowing posteriorly, the basal portion cylindrical; antennæ very slender, longer than the body, the basal joint reaching to a little beyond the apex of the scutellum. Pronotum narrowing from the hind angles forwards, the latter rounded and tumid; the anterior lobe smooth and deeply sulcate down the middle, the posterior lobe rugulose and with two faint anteriorly converging carinæ on the disc in front; the anterior angles transversely tuberculiform (less prominent in the ♂). Elytra extending to far beyond the abdomen. Legs very long and slender, sparsely pilose.

♂. Third antennal joint thickened to beyond the middle and the terminal genital segment produced into a long lobiform process at the apex.

♀. Intermediate femora tumid for some distance along the middle beneath.

Length 12, breadth $2\frac{1}{4}$–$2\frac{1}{2}$ millim. (♂ ♀.)

Hab. PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Four females and one male, all differently coloured. This species is allied to various S.-American forms, some of which appear to be undescribed, and seems to come near

Z. modestus and *Z. prolixus*, Stål. It is not quite certain that the male belongs to the same species; it has both lobes of the pronotum clothed with very short erect blackish hairs, the anterior angles of the pronotum not prominent, and the sixth ventral segment clothed with a patch of white tomentum on each side.

4. **Zelus pictipes,** n. sp. (Tab. XV. fig. 14, ♂.)

Elongate, narrow, slender, dull, clothed with fine pallid pubescence and scattered erect hairs; stramineous, the head more or less blackish above, with a pale stripe on each side anteriorly and a pale median line posteriorly; the anterior lobe of the pronotum nigro-fuscous or black, with six small pale spots (four in a transverse row behind and two on the disc in front of these), the posterior lobe fusco-testaceous, with the sides and basal margin pale; the scutellum and elytra fuscous or fusco-testaceous, the nervures and outer margin of the corium stramineous; the dorsal surface of the abdomen, the connexival margins excepted, infuscate or sanguineous; the femora and tibiæ speckled or annulated throughout with black; the antennæ with joints 1 and 2 fuscous and the rest testaceous, sometimes entirely testaceous. Head about as long as the pronotum, very gradually narrowing behind the eyes, the post-ocular portion longer than the ante-ocular portion; antennæ very slender, as long as the body, joint 1 longer than the head and pronotum united. Pronotum longer than broad, depressed along the middle, the anterior lobe with a median sulcus, the hind angles tumid and rounded, the base feebly emarginate in the centre and with a narrow reflexed margin, the anterior angles tuberculiform. Elytra reaching beyond the apex of the abdomen, the latter narrow. Legs long and slender, sparsely pilose, the anterior femora as long as the hind femora.

♂. Third antennal joint thickened to beyond the middle, and the terminal genital segment armed at the apex with a long, upwardly curved, hooked spine.

Length 11–13, breadth 2–2½ millim. (♂ ♀.)

Hab. MEXICO, Ciudad and Milpas in Durango, Presidio de Mazatlan (*Forrer*), Hacienda de la Imagen, Xucumanatlan, and Chilpancingo in Guerrero (*H. H. Smith*); GUATEMALA, San Gerónimo (*Champion*).

Ten examples, one only of which is from Guatemala. This insect is closely allied to *Z. cervicalis*, Stål, but it has the legs annulated with black (as in the species of the genus *Milyas*), the legs less elongate, &c. The second joint of the rostrum is elongate. The head is very little narrowed towards the base, with the post-ocular portion longer than usual. The six small spots on the anterior lobe of the pronotum are glabrous and well-defined. The larva (from Milpas) has a long black spine at the sides of each of the abdominal segments.

5. **Zelus cervicalis.**

Zelus cervicalis, Stål, Enum. Hemipt. ii. p. 90[1]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 327[2].

Hab. NORTH AMERICA, Carolina [1], Texas [2], Florida [2], California [2].—MEXICO [1 2].

Included in our fauna on Stål's authority. One of his specimens from Carolina has been seen.

6. **Zelus pallens.**

Euagoras pallens, Herr.-Schäff. Wanz. Ins. viii. p. 46, t. 264. fig. 819 [1].
Zelus pallens, Stål, Enum. Hemipt. ii. p. 89 [2].

Hab. Mexico, Orizaba (*Bilimek, in Mus. Vind. Cæs.*).—Brazil [1 2].

In the Vienna Museum collection there is a female specimen of a *Zelus* from Orizaba, as well as a larva of the same species, standing under the name *Z. pallens*. This insect is stramineous in colour, and agrees very fairly with Herrich-Schäffer's figure. It has a less elongate head than either *Z. cervicalis* or *Z. pictipes*, and the post-ocular portion is much more narrowed behind. The larva is not unlike that of *Z. pictipes*, except that the abdomen is without lateral spines and the head is short.

7. **Zelus ruficeps.** (Tab. XV. fig. 15, ♂.)

Zelus ruficeps, Stål, Stett. ent. Zeit. 1862, p. 453 [1].
Zelus (*Diplodus*) *ruficeps*, Stål, Enum. Hemipt. ii. p. 90 [2].

Hab. Mexico [1 2] (*Sallé*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Jalapa (*Höge*), Atoyac (*H. H. Smith, Schumann*), Teapa (*H. H. Smith*); Guatemala, Senahu, Panima, and Chiacam in Vera Paz, El Tumbador, Las Mercedes, Cerro Zunil, Volcan de Atitlan, Zapote, Capetillo, Aceituno (*Champion*); Panama (*Boucard*), Volcan de Chiriqui (*Champion*).

As noted by Stål, there are three well-marked forms of this species: one (*a*) with the posterior lobe of the pronotum entirely pale; one (*b*) with a transverse black patch on this part; one (*c*) like the latter, but with the clavus and corium, the outer margin of the latter, and sometimes the apex also, excepted, blackish. The black fascia on the anterior lobe of the pronotum is variable in size, sometimes extending over the greater part of the disc. The males have the terminal genital segment emarginate at the apex and armed with a long, slender, upwardly curved spine. The females usually have the hind tibiæ slightly thickened on the inner side for some distance before the middle (as in the same sex of *Z. janus*), but this is not always the case. The third antennal joint is slender in both sexes. A specimen from the Volcan de Chiriqui is figured.

8. **Zelus grassans.** (Tab. XV. figg. 16, ♂; 17, ♀.)

Zelus grassans, Stål, Stett. ent. Zeit. 1862, p. 450 (♀) [1].
Zelus (*Diplodus*) *grassans*, Stål, Enum. Hemipt. ii. p. 91 [2].

Hab. Mexico [2] (*coll. Signoret* [1], *in Mus. Vind. Cæs.*: ♀), Milpas in Durango, Mazatlan (*Forrer*: ♂ ♀); Guatemala, San Gerónimo (*Champion*: ♂).

The type of this species (now before me) is a female, and we have received three others of the same sex from Mexico agreeing perfectly with it. The five males obtained by Forrer and myself have the lateral angles of the pronotum much less acute, the

pronotum with a large, transverse black patch on the disc of the posterior lobe, and the clavus and corium, except sometimes the base, apex, and outer margin of the latter narrowly, black. The antennæ are entirely black. The legs are black, with the intermediate and hind femora in great part, and usually the base of the anterior pair also, rufous (the two hinder pairs having one or two rings about the middle, and the apex broadly, black). In the males the head, coxæ, and abdomen are bright rufous, and the ventral segments are banded with black and white; the third antennal joint is slightly thickened to about the middle, and the terminal genital segment is armed with a long, slender, upwardly curved spine at the apex, in this sex. A male from Mazatlan and a female from Milpas are figured.

9. **Zelus fasciatus,** n. sp. (Tab. XV. fig. 18, ♀.)

♀. Elongate, narrow, rather shining, very sparsely pubescent; sanguineous, the pronotum black, with a broad, transverse, sordid ochreous fascia occupying the anterior half of the posterior lobe; the scutellum, legs, and antennæ black; the apical two joints of the rostrum piceous; the elytra with the corium ochreous, the produced apical portion excepted, the clavus black, and the membrane fusco-violaceous; the wings smoky; the mesopleura with a small black spot. Head as long as the pronotum, the basal portion stout and cylindrical; antennæ very long and slender, longer than the body, the basal joint as long as the head, pronotum, and scutellum united; pronotum rapidly narrowing from the lateral angles forwards, the latter armed with a slender, acute, outwardly directed spine; the anterior lobe smooth, deeply sulcate down the middle posteriorly; the anterior angles transversely tuberculiform, not prominent; the posterior lobe rugulose; the basal margin narrowly reflexed. Elytra extending to a little beyond the abdomen. Legs sparsely pilose, very long and slender, all the femora thickened at the base; intermediate femora slightly tumid for some distance along the middle beneath.

Length 14, breadth $2\frac{3}{4}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

One example. Allied to *Z. nugax* and *Z. mimus*, but very differently coloured and with a longer head, the latter less narrowed behind. The second joint of the rostrum is twice as long as the first. The head, abdomen, and under surface are sanguineous; the pronotum and elytra are partly black and partly ochreous; the scutellum, legs, and antennæ are black. In the coloration of the head the present species resembles *Z. ruficeps* and *Z. grassans*.

Z. erythrocephalus, Fabr., from Colombia and Guiana, is probably an allied form; but it is described as black, with the head rufous and the wings cyaneous.

10. **Zelus janus.** (Tab. XV. figg. 19, ♀; 20, 20 *a*, ♂, var.)

Zelus janus, Stål, Stett. ent. Zeit. 1862, p. 452 (♂ ♀) [1].

Zelus (*Diplodus*) ***janus***, Stål, Enum. Hemipt. ii. p. 90 [2].

Zelus litigiosus, Stål, Stett. ent. Zeit. 1862, p. 453 (♀) [3].

Zelus (*Diplodus*) ***litigiosus***, Stål, Enum. Hemipt. ii. p. 90 [4].

Hab. MEXICO (*Mus. Holm.* [1 2 3 4]; *coll. Signoret* [1], *in Mus. Vind. Cæs.*), Jalapa (*Höge*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Atoyac and Teapa (*H. H. Smith*), Temax in N. Yucatan (*Gaumer*); GUATEMALA, San Gerónimo (*Champion*).

Var. *α*. The femora each with the extreme apex and two narrow more or less complete annuli, and the hind tibiæ sometimes with an annulus at about one-third from the base, black. (♂ ♀.) (Fig. 20.)

Hab. MEXICO, Tepic (*Schumann*), Guadalajara (*Höge*), Amula, Cuernavaca (*H. H. Smith*).

Var. *β*. Black, the lateral and basal margins of the pronotum rufo-testaceous, the connexival margins and a space down the middle of the venter to the apex dirty yellow; the legs in great part black. (♂.)

Hab. MEXICO, Amula (*H. H. Smith*).

A very variable insect. The variety *α*, of which we have received eleven specimens from Western Mexico, looks, at first sight, distinct. In the typical *Z. janus* the anterior and intermediate femora have each a narrow ring at about one-third from the apex, and the apex of the hind pair broadly, black, the hind tibiæ usually with a broad black ring below the base; in some examples the hind femora have only a narrow black ring before the apex and the intermediate pair are immaculate. The form of the spine at the lateral angles of the pronotum is variable. The males have a long curved spine at the apex of the terminal genital segment; the females have the hind tibiæ thickened on the inner side for some distance before the middle. The third antennal joint is slender in both sexes; the first joint varies in length. The types of Stål's insects have been seen.

11. **Zelus sulcicollis,** n. sp. (Tab. XV. fig. 21, ♀.)

♀. Elongate, rather robust, slightly shining, thickly pubescent and also clothed with pallid erect hairs; fusco-testaceous, the post-ocular portion of the head blackish, a median line or spot in front excepted, the dorsal surface of the abdomen and a transverse fascia on each of the connexival segments blackish, the corium and clavus reddish in one specimen, the membrane smoky; the intermediate and hind femora sometimes slightly infuscate at the apex and with indications of a dark ring before the tip; the antennæ rufo-testaceous, with the first and second joints narrowly infuscate at the apex. Head nearly as long as the pronotum, narrowing posteriorly, the basal portion stout and cylindrical; antennæ as long as the body, the first joint reaching to a little beyond the base of the pronotum. Pronotum sulcate down the middle from the apex to halfway down the posterior lobe, the latter flattened and moderately dilated at the sides posteriorly, the hind angles armed with a short triangular tooth; the anterior lobe smooth, the posterior lobe feebly rugulose, the basal margin reflexed, the anterior angles transversely tuberculiform. Elytra extending to a little beyond the apex of the abdomen. Legs elongate, comparatively stout, pilose; the anterior femora incrassate and as long as the hind femora, the intermediate pair moderately thickened.

Length 19–21, breadth $4\frac{1}{2}$–5 millim.

Hab. MEXICO, Tepic (*Schumann*), Omilteme in Guerrero (*H. H. Smith*); GUATEMALA, San Gerónimo (*Champion*).

Four specimens, all females. Chiefly recognizable by the pilose body, the long pronotal sulcus, and the incrassate anterior femora. The second joint of the rostrum is much longer than the first. The tooth at the hind angles of the pronotum is short, acute, and triangular. *Z. sulcicollis* is nearest allied to *Z. janus*, Stål, but differs from it in the more thickly pilose body, the stouter legs (the anterior femora especially),

and the longer sulcus on the pronotum, the posterior tibiæ simple in the female. An example from San Gerónimo is figured.

12. **Zelus atripes,** n. sp. (Tab. XV. fig. 22, ♀.)

♀. Elongate, broad, shining, finely pubescent and also clothed with pallid erect hairs; testaceous, the anterior lobe of the pronotum with two small black spots on the disc in front, the connexival segments, the pleura, and the sides of the ventral segments each with a row of small black spots, the corium with a black mark at the base of the narrow apical portion, the membrane smoky; the legs (including the trochanters), rostrum, and antennæ black; the head with a short black streak on each side at the base and another behind the eyes. Head narrowing posteriorly, shorter than the pronotum, the basal portion stout and cylindrical; antennæ with the basal joint about as long as the head and pronotum united. Pronotum broadly truncate at the base; the posterior lobe dilated at the sides posteriorly, rugulose, the hind angles armed with a prominent triangular tooth, the basal margin strongly reflexed; the anterior lobe smooth, sulcate down the middle, the anterior angles tuberculiform. Elytra extending to a little beyond the abdomen. Legs elongate, comparatively stout, pilose; the anterior and intermediate femora moderately thickened, the anterior pair as long as the third pair; the hind tibiæ simple.

Length 22, breadth (of the pronotum) $6\frac{1}{4}$ millim.

Hab. PANAMA (*Boucard*).

One example. The strongly dilated posterior lobe of the pronotum, the black legs, rostrum, and antennæ, and the different coloration distinguish this species from *Z. janus* and its allies. The second joint of the rostrum is much longer than the first.

13. **Zelus exsanguis.** (Tab. XV. figg. 23, ♀; 23 *a*, ♂.)

Zelus exsanguis, Stål, Stett. ent. Zeit. 1862, p. 452[1].
Zelus (*Diplodus*) *exsanguis,* Stål, Enum. Hemipt. ii. p. 91[2].
Diplodus exsanguis, Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 283[3].
Zelus luridus, Stål, Stett. ent. Zeit. 1862, p. 452, nota[4].
Zelus (*Diplodus*) *luridus,* Stål, Enum. Hemipt. ii. p. 91[5].
Diplodus luridus, Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 327[6].

Hab. NORTH AMERICA, North Carolina[4 5], Colorado[6], Texas[6], Lower California[3].—MEXICO (*Mus. Holm.*[1 2]; *coll. Signoret*[1], *in Mus. Vind. Cæs.; Sallé*), Xucumanatlan in Guerrero, Atoyac (*H. H. Smith*), Cuernavaca (*Bilimek, in Mus. Vind. Cæs.*), Orizaba (*H. H. Smith, Godman, Bilimek*), Jalapa (*Höge*), Temax in N. Yucatan (*Gaumer*); GUATEMALA, El Tumbador, Las Mercedes, Guatemala city, Capetillo, Zapote, Chiacam, San Gerónimo (*Champion*); PANAMA, Tolé (*Champion*).

Var. The head in some specimens black above, a line down the centre of the post-ocular portion excepted; the pronotum usually with the posterior lobe on each side and the lateral spines, and the femora each with the apex rather broadly, infuscate or black.

Zelus ambulans, Stål, Stett. ent. Zeit. 1862, p. 451[7].
Zelus (*Diplodus*) *ambulans,* Stål, Enum. Hemipt. ii. p. 91[8].
Diplodus cognatus, Costa, Ann. Mus. Zool. Nap. i. p. 81, nota (1862)[9].

Hab. MEXICO[9] (*Mus. Holm.*[7 8]; *coll. Signoret, in Mus. Vind. Cæs.; Sallé*), Atoyac (*Schumann*), Orizaba (*Bilimek*); GUATEMALA, Cerro Zunil, San Gerónimo (*Champion*).

The types of Stål's species are before me, and, with our long series of specimens for comparison, it is evident that they are forms of one variable insect. In the typical *Z. exsanguis* the posterior lobe of the pronotum is flattened on the disc and considerably dilated at the sides, and the lateral spines are pale and directed outwards. In *Z. luridus* the lateral spines of the pronotum are black, and the pronotum is narrower at the base. In *Z. ambulans* the apices of the femora are black, a character of no importance as the knees are often darker in *Z. exsanguis*; and the lateral spines of the pronotum are usually infuscate or black, these being in some specimens directed forwards (*Z. cognatus*, Costa) and in others outwards. The pronotum often has a transverse row of four or five dots between the two lobes, and the tuberculiform anterior angles, black; the lateral spines vary in length. The two basal joints of the antennæ are testaceous or reddish, with the apex infuscate or black; the first joint varies in length. The males have the third antennal joint thickened to about the middle, and the terminal genital segment armed at the apex with a stout, tapering, upwardly-curved spine. The hind tibiæ are simple in both sexes. The very variable *Z. chamæleon*, Stål, from Colombia, is an allied form. A female of *Z. exsanguis* from El Tumbador is figured.

14. **Zelus lævicollis,** n. sp. (Tab. XV. fig. 24, ♀.)

♀. Elongate, narrow, moderately robust, shining, sparsely pubescent, stramineous; the head with the post-ocular portion black above, a line on each side extending from the eyes to the ocelli, and also one down the middle, stramineous, the anterior portion mottled with brownish; the pronotum dilute fuscous, with the lateral and basal margins, and two transverse rows of small spots on the anterior lobe, stramineous; the elytra fuscous, with the costal and median nervures of the corium, as well as the portion of the latter adjoining the base of the membrane, stramineous, the membrane smoky; (antennæ broken off). Head elongate, gradually narrowing behind the eyes, the basal portion stout and cylindrical. Pronotum a little longer than the head; the anterior angles armed with a short stout tooth, the lateral angles with a very short tooth; the anterior lobe sulcate down the middle, with sinuous lines of pubescence between the smooth bare spots; the posterior lobe flattened on the disc and with indications of two anteriorly converging carinæ in front, apparently smooth, but with a close minute punctuation showing through from beneath. Scutellum blunt and thickened at the apex. Legs sparsely pilose, moderately elongate; the anterior femora as long as, but much stouter than, the hind femora; the hind tibiæ simple.

Length $13\frac{1}{2}$, breadth of the pronotum $2\frac{4}{5}$ millim.

Hab. Mexico, Milpas in Durango 5900 feet (*Forrer*).

One example. This species is nearest allied to *Z. exsanguis*, var. *luridus*, Stål, but differs from it in having the posterior lobe of the pronotum almost smooth, with the lateral angles armed with a very short tooth, and the legs less elongate. From *Z. janus* (♀), which it resembles in the arrangement of the pubescence on the anterior lobe of the pronotum, it may be separated by the simple posterior tibiæ, the much smaller size, narrower shape, &c.

15. **Zelus nugax.** (Tab. XV. fig. 25, ♂.)

Zelus nugax, Stål, Stett. ent. Zeit. 1862, p. 450 (♂)[1].
Zelus (*Diplodus*) *nugax*, Stål, Enum. Hemipt. ii. p. 91[2].

Hab. Mexico (*Sallé, in Mus. Holm.*[1 2]), Medellin and Atoyac in Vera Cruz, Teapa in Tabasco (*H. H. Smith*), Valladolid and Temax in Yucatan (*Gaumer*); Guatemala, Tocoy and Chiacam in Vera Paz (*Champion*); Honduras, Ruatan I. (*Gaumer*); Nicaragua, Chontales (*Janson*); Panama, Bugaba, Volcan de Chiriqui, Caldera, David (*Champion*).

Sent in abundance from Yucatan. In nearly all the specimens seen the short lateral spines of the pronotum are black. The femora are usually reddish at the apex, sometimes with a narrow dark ring before the tip, and in one of the examples from Bugaba they are faintly annulated with fuscous; the tibiæ in some specimens are also faintly annulated with fuscous. The females are considerably larger than the males. The latter have the third antennal joint thickened to beyond the middle, and the terminal genital segment armed at the apex with a long, acute, upwardly curved spine. A male from David is figured.

16. **Zelus mimus.**

Zelus mimus, Stål, Stett. ent. Zeit. 1862, p. 451 (♂ ♀)[1].
Zelus (*Diplodus*) *mimus*, Stål, Enum. Hemipt. ii. p. 91[2].
Zelus umbratilis, Stål, Stett. ent. Zeit. 1862, p. 451 (♀)[3].
Zelus (*Diplodus*) *umbratilis*, Stål, Enum. Hemipt. ii. p. 91[4].

Hab. Mexico[2] (*Mus. Holm.*[3 4]; *coll. Signoret*[1], *in Mus. Vind. Cæs.*; *Sallé*).

This species is very closely allied to *Z. nugax*, and perhaps not really distinct from it. The types of *Z. mimus* and *Z. umbratilis* are before me, and I am unable to separate them. Both appear to have the basal joint of the antennæ a little longer than in *Z. nugax*; in the type of the female of *Z. mimus* the posterior lobe of the pronotum is pale. The antennæ and legs are darker, and the latter a little more slender, than in *Z. nugax*. The pronotum has a very short slender spine at the lateral angles and the base is very feebly margined. The single specimen received by us, a male, is in a mutilated condition. The sexual characters are similar to those of *Z. nugax*.

17. **Zelus nigromaculatus,** n. sp. (Tab. XV. fig. 26, ♂.)

Very elongate, narrow, slightly shining, sparsely pubescent; flavous, the head with an oblong spot on the tylus in front, two posteriorly converging lines on the ante-ocular portion, and two oblong marks on each side of the post-ocular portion (placed one behind the other, and connected in one example), black; the pronotum with a transverse fascia on the anterior lobe before the apex and two fasciæ on the posterior lobe—one in front and the other before the base,—the two latter connected along each side of the middle of the disc, and the lateral spines, nigro-fuscous or black; the scutellum fuscous at the sides anteriorly; the clavus and corium fuscous, the nervures of the latter flavous; the membrane and wings

smoky; the abdomen with the fifth and sixth dorsal segments and a transverse fascia at the base of the others black; the ventral segments at the sides and the pleura with a series of small black spots; the rostrum annulated with black at the base; the antennæ black; the femora flavous, triannulated with black, the tarsi and tibiæ blackish, the latter with two or three pale rings towards the base. Head about as long as the pronotum, narrowing behind the eyes, the basal portion cylindrical; antennæ very slender, longer than the body, the basal joint about as long as the head, pronotum, and scutellum united. Pronotum narrowing from the hind angles forwards, the latter armed with a long, acute, outwardly directed spine; the anterior lobe smooth, sulcate down the middle; the anterior angles transversely tuberculiform and rather prominent; the posterior lobe rugulose, without carinæ on the disc, the basal margin narrowly reflexed. Elytra extending considerably beyond the abdomen. Legs very long and slender, sparsely pilose.

♂. Third antennal joint thickened to beyond the middle; terminal genital segment armed at the apex with a long, slender, upwardly curved, hooked spine.

Length $12\frac{1}{2}$–16, breadth $2\frac{1}{4}$–$2\frac{3}{4}$ millim. (♂ ♀.)

Hab. Panama, Bugaba (*Champion*).

One pair, in a perfect state of preservation. The peculiar coloration of the head and pronotum separates this species from all others of the genus known to me.

18. **Zelus tetracanthus.** (Tab. XV. fig. 27, ♂.)

Zelus tetracanthus, Stål, Stett. ent. Zeit. 1862, p. 454 (♂)[1].

Zelus (*Pindus*) *tetracanthus*, Stål, Enum. Hemipt. ii. p. 92[2].

Hab. Mexico[2] (*coll. Signoret*[1], *in Mus. Vind. Cæs.; Mus. Holm.*), Temax in N. Yucatan (*Gaumer*: ♂); Guatemala, San Gerónimo and Tocoy in Vera Paz (*Champion*: ♂ ♀).

. We possess three specimens of this species, agreeing perfectly with the type. The males have the third antennal joint thickened to near the tip, and the terminal genital segment produced at the apex into a short, stout, pointed tooth. The second joint of the rostrum is twice the length of the first. There are two females of *Z. tetracanthus* amongst the unnamed specimens in the Stockholm Museum; one of these has the posterior lobe of the pronotum pale, and the lateral and dorsal spines reduced to blunt teeth.

NOTOCYRTUS.

Notocyrtus, Burmeister, Handb. der Ent. ii. p. 227 (1835); Stål, Öfv. Vet.-Ak. Förh. 1859, p. 367, 1866, p. 296; Hemipt. Fabr. i. p. 105; Enum. Hemipt. ii. pp. 69, 84.

Saccoderes, Spinola, Essai sur les Ins. Hémipt. p. 114 (1840); Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 380.

Subgen. *Homalocyphus*, Stål, Hemipt. Fabr. i. p. 105; Enum. Hemipt. ii. p. 84.

Subgen. *Cystingonotus*, Stål, loc. cit. p. 105; loc. cit. p. 85.

Subgen. *Ceratocyphus*, Stål, loc. cit. p. 106; loc. cit. p. 85.

Subgen. *Cœlocyrtus*, Stål, loc. cit. p. 106; loc. cit. p. 86.

A Tropical-American genus easily recognizable by the inflated posterior lobe of the pronotum, this being produced forwards so as to nearly cover the anterior lobe as seen from above and backwards over the scutellum. *N. bactrianus* will probably have to

be separated eventually, as it has the intermediate and posterior tibiæ peculiarly formed. The terminal genital segment of the males of our species is unarmed and simply rounded at the apex. Some of the *Notocyrti* are very variable in colour, and several of the described forms are probably nothing more than varieties. Many of the specimens examined are more or less coated with a viscous substance, this being especially noticeable on the dilated setose portions of the hind tibiæ.

Intermediate and hind tibiæ rounded externally.

Head with two long spines; pronotum with the posterior lobe greatly inflated, emarginate in front, produced laterally into a curved horn-like process, and strongly depressed on the disc before and behind the middle . . . *dorsalis*, Griff.

Head with two short blunt spines; pronotum with the posterior lobe moderately inflated, unemarginate in front and simply rounded at the sides posteriorly, divided into two parts by a curved transverse groove . . . . . *foveatus*, Stål.

Intermediate and hind tibiæ flattened or excavate externally; head with two very short blunt spines; pronotum with the posterior lobe rounded-pentagonal, divided into two parts by a straight transverse groove . . . . . *bactrianus*, n. sp.

1. **Notocyrtus dorsalis.** (Tab. XVI. figg. 1, 1 *a*, ♀; 2, ♂, 3, ♀, vars.)

Reduvius dorsalis, Gray, in Griffith's Anim. Kingd., Ins. ii. p. 243, t. 91. fig. 2 (1832) [1].

Notocyrtus (*Ceratocyphus*) *dorsalis*, Stål, Enum. Hemipt. ii. p. 85 [2].

Reduvius vesiculosus, Perty, Del. Anim. art. Bras. p. 173, t. 34. fig. 11 (nec 12) (1834) [3].

Notocyrtus (*Ceratocyphus*) *vesiculosus*, Stål, Hemipt. Fabr. i. p. 106 [4]; Enum. Hemipt. ii. p. 86 [5].

Hab. Guatemala, San Gerónimo, Purula, Panima, and Cubilguitz in Vera Paz (*Champion*).—Colombia, Cartagena [1 2]; Brazil [3 5].

Var. The inflated posterior lobe of the pronotum black or blackish, with the produced basal portion paler; the legs black, annulated with flavous. (♂ ♀.) (Fig. 2.)

Notocyrtus dromedarius, Stål, Stett. ent. Zeit. 1862, p. 449 [6].

Notocyrtus (*Ceratocyphus*) *dromedarius*, Stål, Enum. Hemipt. ii. p. 86 [7].

Hab. Mexico (*Mus. Holm.* [6 7]), Atoyac in Vera Cruz (*Schumann*), Teapa in Tabasco (*H. H. Smith*); Guatemala, San Gerónimo (*Champion*); Panama, Bugaba, David, Caldera in Chiriqui (*Champion*).

Var. The inflated posterior lobe of the pronotum black or blackish, with a transverse angulate fascia before the middle, and a line extending from it downwards on the centre of the disc, flavous, the basal portion entirely testaceous; the legs in great part ochreous, the median third of the hind tibiæ black. (Fig. 3.) (♂ ♀.)

Notocyrtus flavolineatus, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 373 [8].

Notocyrtus (*Ceratocyphus*) *flavolineatus*, Stål, Enum. Hemipt. p. 86 [9].

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*).—Amazons, Pará [8 9].

A very variable insect. In the typical *N. dorsalis* (Gray) the posterior lobe of the

pronotum is paler and more inflated than in the varietal forms, but as intermediate examples occur no importance can be attached to this character. The S.-American *N. consimilis* and *N. pulvinatus*, Stål, are, no doubt, varieties of the same species, as already noted by him [2]. Thirty specimens of *N. dorsalis* have been seen from within our limits, five only of these belonging to the var. *flavolineatus*.

We figure a typical female from Panima, a female of the var. *dromedarius* from Teapa, and a male of the var. *flavolineatus* from Bugaba.

2. **Notocyrtus foveatus.** (Tab. XVI. figg. 4, 4 *a*, ♀.)

Notocyrtus (*Cystingonotus*) *foveatus*, Stål, Enum. Hemipt. ii. p. 85 (♂) [1].

Hab. PANAMA, Bugaba (*Champion*).—COLOMBIA, Bogota [1].

Two females of this species were found by myself in Chiriqui. The type has been seen.

3. **Notocyrtus bactrianus,** n. sp. (Tab. XVI. figg. 5, 5 *a*, ♂; 5 *b*, hind leg.)

Moderately elongate, robust, shining, thickly clothed with short pallid pubescence; sordid ochreous, the head with a space between the eyes and the post-ocellar portion, a line or spot in the centre excepted, black; the pronotum with the anterior lobe flavous in front, the posterior lobe with the anterior portion entirely, and two triangular patches on the disc beyond, these latter connected behind, nigro-piceous or black; the elytra testaceous, with the membrane subhyaline; the abdomen with the dorsal segments 4–6 broadly infuscate across the middle, the ventral segments 3–5 each with a transverse oblique dark streak at the sides; the antennæ blackish, with joint 1 beneath and 2 and 3 at the base obscurely flavous; the rostrum with a black line along each side; the pleura partly blackish; the legs ferrugineo-testaceous, the tibiæ more or less infuscate towards the apex. Head short, swollen behind the eyes and also tumid at the base beneath, armed above with two short obtuse prominences and with the tylus raised along the middle in front, the eyes small; antennæ rather short, joint 1 a little longer than 3, 2 short, 4 slightly longer than 2. Pronotum with the posterior lobe subpentagonal in shape, slightly constricted at the sides, transversely depressed across the middle, and declivous behind, the produced supra-scutellar portion longitudinally depressed in the centre and rounded at the tip, the anterior portion moderately inflated, rounded in front, and almost covering the anterior lobe, the lateral angles rounded; the anterior angles each armed with a short, stout tooth. Elytra extending to a little beyond the abdomen. Legs stout; the femora moderately incrassate, the posterior pair considerably swollen before the apex above; the anterior tibiæ curved; the intermediate and hind tibiæ flattened or excavate along their outer face, and also hollowed along their inner face, appearing triangular in shape, the intermediate pair becoming moderately and the hind pair enormously incrassate towards the middle; the femora and tibiæ densely and shortly ciliate within.

Length $9\frac{1}{2}$–10; breadth of the pronotum $2\frac{3}{4}$–3, of the elytra at the base 2–$2\frac{1}{2}$ millim. (♂ ♀.)

Hab. PANAMA, Bugaba and Caldera in Chiriqui (*Champion*).

Two specimens. Differs from our other species in the peculiarly formed intermediate and hind tibiæ, as well as in the shape of the posterior lobe of the pronotum; this latter is simply transversely depressed across the middle and declivous behind, with the anterior portion convex and unemarginate in front, and the supra-scutellar portion deeply depressed along the middle.

PIRNONOTA.

Pirnonota, Stål, Öfv. Vet.-Ak. Förh. xvi. p. 369 (1859), xxiii. p. 293 (1866); Enum. Hemipt. ii. pp. 69, 84.

A monotypic Tropical-American genus, chiefly distinguishable by the short curved spines on the head, the convex, laterally spined posterior lobe of the pronotum, the short, broad abdomen in both sexes, and the comparatively short legs.

1. **Pirnonota convexicollis.** (Tab. XVI. figg. 6, 6 *a*, ♂; 7, ♀.)

Pirnonota convexicollis, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 370 (♀)[1]; Enum. Hemipt. ii. p. 84[2].

Hab. Panama (*Boucard*), Volcan de Chiriqui, Caldera, Tolé (*Champion*).—Brazil, Rio Janeiro [1 2].

We possess two males and three females of this species, all but one of which were found by myself in Chiriqui. They are very variable in colour, the three bluish-black lines on the posterior lobe of the pronotum being sometimes connected in front and behind, so as to enclose two large pale spots on the disc, and sometimes interrupted. In the darkest specimens the elytra have the base and a broad transverse fascia about the middle, the latter extending across the base of the membrane and the apex of the corium, and forwards along the costal and inner margins, but leaving a pale spot on the membrane, nigro-cæruleous. The femora and the basal joints of the antennæ are very variable in colour. The elytra extend far beyond the abdomen in both sexes. The third joint of the antennæ is not thickened in the males.

DEBILIA.

Debilia, Stål, Öfv. Vet.-Ak. Förh. xvi. p. 375 (1859), xxiii. p. 295 (1866); Enum. Hemipt. ii. pp. 68, 84.

A Tropical-American genus including several very closely allied species. The two now added from Central America seem to be different from any of those described, one only of which is known to me. They are long and slender insects, with the sixth abdominal segment armed with a long spine on each side at the apex, the scutellum rounded behind, the post-scutellum produced into a short tooth, and the head and pronotum armed with long spines. The species differ sexually in the armature of the sides of the abdomen, the females having fewer lateral spines than the males.

1. **Debilia angustata,** n. sp. (Tab. XVI. figg. 8, 8 *a*, ♂.)

Elongate, narrow; stramineous or testaceous, the elytra with an indistinct fascia beyond the middle, the apex of the corium, the clavus, and the adjoining basal portion of the corium, the nervures excepted, usually more or less fuscous in mature specimens; the apical portion of the corium in the middle, the knees, and the dorsal surface of the abdomen, sometimes partly stained with sanguineous. Head shorter than the pronotum, much narrowed behind, armed above with two long spines, the eyes large and prominent in the male, smaller in the female; antennæ very elongate, joint 1 three times as long as 2, 3 slender in both sexes. Pronotum armed with two long spines on the disc of the posterior lobe towards the base and with a long outwardly directed spine at each of the lateral angles, the posterior lobe with two anteriorly

converging carinæ on the disc extending from the spines forwards. Elytra a little longer than the abdomen. Abdomen with a long, straight, posteriorly directed spine at each of the outer apical angles of the sixth connexival segment; the segments 1–5 in the male, and 1 and 2 in the female, each armed with a spine at the outer apical angles, the first three spines in the male longer than the others.

Length 12–14, breadth 2–2½ millim. (♂ ♀.)

Hab. PANAMA, Bugaba, Volcan de Chiriqui, Caldera (*Champion*).

Four females and one male. This species is extremely like *D. pilicornis*, Stål, the type (♀) of which is before me; but in the female of that insect the connexival segments 1–5 are each armed with a spine, the eyes are not so prominent, and the long spines at the apex of the abdomen are curved, instead of straight, as in the Panama examples. *D. macra*, Stål, from Brazil, described from a mutilated male specimen, is another very nearly allied form. In the mature examples of *D. angustata* the elytra are more or less distinctly bifasciate beyond the middle.

2. **Debilia rufescens**, n. sp. (Tab. XVI. figg. 9, 9 *a*, ♂ *.)

Elongate, narrow; vermilion-red, fading to testaceous or stramineous, the two basal joints of the antennæ and the four hinder femora, except at their apices, flavous, the membrane and wings subhyaline. Head shorter than the pronotum, armed above with two long spines; the eyes moderately prominent and of the same size in the two sexes. Pronotum as in *D. angustata*. Abdomen with a long straight spine at each of the outer apical angles of the sixth connexival segment in the male, the spines shorter in the female; the segments 1, 4, and 5 each with a very short, and 2 and 3 with a long, spine in the male, the segments 1 and 2 only spined in the female.

♂. Terminal genital segment armed at the apex with a long, upwardly curved spine, which is truncate and bent downwards at the tip.

Length 11–13, breadth 2–2½ millim. (♂ ♀.)

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

Two males and one female. Very like *D. angustata*, but vermilion-red in colour, with the eyes much smaller in the males, and the spines at the apical angles of the first abdominal segment shorter (obsolete in one specimen) in this sex. The female can only be separated from that of *D. angustata* by the rufous coloration and the slightly shorter spines at the apex of the abdomen. In one of the specimens of *D. rufescens* there are traces of two darker fasciæ on the elytra beyond the middle.

RICOLLA.

Ricolla, Stål, Öfv. Vet.-Ak. Förh. xvi. p. 367 (1859), xxiii. p. 292 (1866); Enum. Hemipt. ii. pp. 68, 77.

The species of this genus are easily distinguishable from all the allied forms by the bispinous knees. The abdominal segments 1–5 in the male and 1–6 in the female are each armed with a spine at the outer apical angles.

1. **Ricolla simillima.** (Tab. XVI. fig. 10, ♂.)

Ricolla simillima, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 367[1]; Stett. ent. Zeit. 1862, p. 446[2]; Enum. Hemipt. ii. p. 78[3].

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* The insect is more elongate than represented by our artist.

Hab. Mexico [1–3] (*Sallé; Sichel, in Mus. Vind. Cæs.*), San Lorenzo near Cordova (*M. Trujillo*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Atoyac in Vera Cruz (*Schumann, H. H. Smith*), Teapa in Tabasco (*H. H. Smith*); Guatemala, San Juan, Tamahu, Teleman, Chacoj, Sabo, Panima, and San Gerónimo in Vera Paz (*Champion*); Nicaragua, Chontales (*Janson*); Costa Rica, Talamanca (*Mus. Holm.*), Caché (*Rogers*); Panama, Bugaba, Volcan de Chiriqui, David (*Champion*).

A common insect in Central America, from Vera Cruz southwards, though apparently confined to the Atlantic slope in Mexico and Guatemala. The males have a long, upwardly curved spine at the apex of the terminal genital segment. The third joint of the antennæ is slender in both sexes. A specimen from Teapa is figured.

2. **Ricolla pallidinervis.**

Ricolla pallidinervis, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 367 [1]; Enum. Hemipt. ii. p. 78 [2].

Hab. Panama, near the city (*J. J. Walker*).—Venezuela, Caracas [1 2].

A single female specimen of this species has been found at Panama by Mr. Walker. It is extremely like *R. simillima*, but differs from it in having a short conical tubercle at each of the anterior angles of the pronotum; the marginal spines of the abdomen are also longer than in the females of that insect.

REPIPTA.

Repipta, Stål, Öfv. Vet.-Ak. Förh. xvi. p. 369 (1859), xxiii. p. 293 (1866); Hemipt. Fabr. i. p. 103, nota; Enum. Hemipt. ii. pp. 69, 80.

Seven species from Central America are here referred to this American genus, one of them (*R. taurus*, Fabr.) being a well-known insect. *R. miniata* differs from the others in having the sides and apex of the abdomen spinose, but it seems better placed here than in *Debilia* or *Rocconota*. Some of these insects are superficially very like *Zelus*, but they may be easily separated therefrom by the comparatively short second joint of the rostrum. The third joint of the antennæ is, in most of the species, more or less thickened in the males, this being especially noticeable in *R. fuscipes*.

a. Abdominal segments unarmed at the sides.
  a'. Body moderately elongate, not very slender, not uniformly coloured above.
  a''. Head with two short spines or tubercles.
    a'''. Legs unicolorous, black; corium, clavus, and rostrum black or blackish: size large . . . . . *fuscipes*, Stål.
    b'''. Legs sanguineous, annulated with black; corium and clavus partly fuscous: size small . . . . . *nigronotata*, Stål.

b''. Head with two long spines.
c'''. Corium fuscous, the costal margin sanguineous or testaceous; pronotum usually maculate; legs slender.
*a*⁴. Legs black, the femora sometimes pale at the base; the posterior lobe of the pronotum in great part black or with two black vittæ . . . . . *taurus*, F.
*b*⁴. Legs pale; the posterior lobe of the pronotum immaculate or with two faint vittæ . . . . . *flavescens*, A. & S.
d'''. Corium sanguineous, paler inwards; pronotum immaculate; legs rather stout . . . . . *sanguinea*, n. sp.
b'. Body narrow and elongate, obscurely coloured above.
c''. Head with two short spines or tubercles; discoidal cell of the elytra elongate: body very elongate . . . . . *gracilis*, n. sp.
d''. Head with two slender spines; discoidal area of the elytra short: body moderately elongate . . . . . *mucosa*, n. sp.
b. Abdominal segments spinous at the sides, the sixth with a curved spine at the outer apical angles: body elongate, sanguineous . . . . . *miniata*, n. sp.

1. **Repipta fuscipes.** (Tab. XVI. fig. 11, ♂.)

Isocondylus fuscipes, Stål, Öfv. Vet.-Ak. Förh. 1855, p. 189 [1].
Repipta fuscipes, Stål, Stett. ent. Zeit. 1862, p. 446 [2]; Enum. Hemipt. ii. p. 80 [3].

Hab. MEXICO [1–3] (*Bilimek, in Mus. Vind. Cæs.*), Milpas in Durango, Presidio de Mazatlan (*Forrer*), Sierra Madre de Tepic (*Richardson*), Dos Arroyos, Rincon, and Chilpancingo in Guerrero (*H. H. Smith*); GUATEMALA, San Gerónimo (*Champion*).

Not uncommon in Western Mexico, whence we have received many specimens. In this species the antennæ, the anterior margin of the pronotum, the corium, clavus, rostrum, and legs are constantly black or blackish, and the membrane dark. The posterior lobe of the pronotum is usually black, with the base sanguineous or testaceous, the pale colour sometimes extending forwards along the middle and towards the sides, so as to leave two vittæ on the disc. The males have the eyes large and prominent, the third joint of the antennæ much thickened for two-thirds of its length, and the terminal genital segment armed with a long, upwardly curved spine at the apex. A male from Dos Arroyos is figured.

2. **Repipta nigronotata.** (Tab. XVI. fig. 12, ♀.)

Repipta nigronotata, Stål, Stett. ent. Zeit. 1862, p. 447 [1]; Enum. Hemipt. ii. p. 80 [2].

Hab. MEXICO [2] (*coll. Signoret* [1], *in Mus. Vind. Cæs.*: ♀); GUATEMALA, Tactic in Vera Paz (*Champion*: ♂).

The single (♂) specimen from Guatemala differs from the type (♀), now before me, in having the lateral spines of the pronotum short and dentiform and the disc of the posterior lobe unarmed; the spines on the head are also a little shorter than in the

Mexican example. The Guatemalan insect is similarly coloured, except that the two outer spots on the disc of the posterior lobe of the pronotum are longer and in the form of vittæ. The terminal genital segment of the male is armed with a long, upwardly curved spine at the apex; the third joint of the antennæ is slightly thickened in this sex. The type is figured.

3. **Repipta taurus.** (Tab. XVI. fig. 13, ♂.)

Zelus taurus, Fabr. Syst. Rhyng. p. 291 (1803) [1].
Repipta taurus, Stål, Stett. ent. Zeit. 1862, p. 446 [2]; Enum. Hemipt. ii. p. 80 [3]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 327 [4].
Zelus lineatus, Amy. et Serv. Hist. Nat. Ins. Hémipt. p. 373 [5].

Hab. NORTH AMERICA, Philadelphia [5], Carolina [1], Texas [3 4], Florida &c. [4].—MEXICO [2 3 4] (*Sallé, in Mus. Holm.; Sichel, in Mus. Vind. Cæs.*), Medellin, Atoyac, Teapa (*H. H. Smith*), Orizaba (*Bilimek, in Mus. Vind. Cæs.; H. H. Smith; Godman*), San Lorenzo (*M. Trujillo*), Jalapa (*Höge*), Temax in Yucatan (*Gaumer*); GUATEMALA, San Joaquin, Tocoy, Capetillo (*Champion*), Dueñas (*Salvin, Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

In this species the antennæ, the posterior lobe of the pronotum (the basal margin excepted), the clavus, the corium (the costal margin excepted), and legs are black or blackish. In light-coloured specimens the dark coloration on the posterior lobe of the pronotum is reduced to two vittæ, and the femora are pale at the base. The outer margin of the corium is usually pale. The spines on the head and pronotum are very long. The males have the third joint of the antennæ thickened for two-thirds of its length, and the terminal genital segment armed with a very short tooth at the apex. A male from Teapa is figured.

4. **Repipta flavicans.** (Tab. XVI. fig. 14, ♂.)

Zelus flavicans, Amy. et Serv. Hist. Nat. Ins. Hémipt. p. 374 (1843) [1]; Stål, Stett. ent. Zeit. 1862, p. 447 [2].
Repipta flavicans, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 369 [3]; Enum. Hemipt. ii. p. 80 [4]; Berg, Hempit. Argent. p. 147 [5].
Zelus lateralis, Herr.-Schäff. Wanz. Ins. p. 120 [6].
Zelus ochraceus, Herr.-Schäff. loc. cit. p. 121 [7].
Zelus varipes, Herr.-Schäff. loc. cit. p. 121 [8].

Hab. MEXICO [2] (*Sichel, in Mus. Vind. Cæs.*), Presidio de Mazatlan (*Forrer*), Tuzantla, Chapultepec (*Mus. Vind. Cæs.*), Chilpancingo and Dos Arroyos, Cuernavaca, Teapa (*H. H. Smith*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*), San Lorenzo (*M. Trujillo*); GUATEMALA, Cubilguitz, Sinanja, San Gerónimo, El Tumbador, Coatepeque, Las Mercedes, Cerro Zunil, Volcan de Atitlan, Zapote, Capetillo (*Champion*); COSTA RICA, Talamanca (*Mus. Holm.*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).—SOUTH AMERICA, Guiana [1 4], Brazil [4 6 7 8], Argentina [5].

This insect is certainly nothing more than a variety of the variable *R. taurus*, from which it differs in having the legs pale and the pronotum, at most, faintly streaked with black or fuscous. From Teapa southwards it is much commoner than the dark-legged *R. taurus*; the latter does not appear to extend to the S.-American continent, and it is therefore perhaps more convenient to treat the two forms as distinct. A male from Teapa is figured.

5. **Repipta sanguinea,** n. sp. (Tab. XVI. fig. 15, ♀.)

♀. Moderately elongate, rather broad, sparsely pilose, shining; sanguineous, fading to testaceous, the pronotal spines flavous at the tip, the clavus and membrane yellowish, the antennæ fuscous, the legs, the base of the femora and trochanters excepted, much suffused with that colour; the anterior femora and tibiæ densely, the intermediate and hind pairs sparsely, pilose. Head smooth, a little shorter than the pronotum, armed with two very long spines. Pronotum with two very long spines on the disc of the posterior lobe and a similar spine at each of the lateral angles; the posterior lobe depressed along the middle and with two short carinæ in front; the anterior angles transverse, subconical. Elytra extending considerably beyond the abdomen, the latter unarmed at the sides. Legs elongate.

Length to the apex of the elytra 15, breadth of the abdomen 4 millim.

Hab. PANAMA (*Boucard*).

Three examples. Larger, broader, and more robust than the females of the variable *Z. taurus* and *Z. flavicans*, the legs stouter, the anterior tibiæ more densely pilose, the corium sanguineous, its inner portion and the clavus paler.

6. **Repipta gracilis,** n. sp. (Tab. XVI. fig. 16, ♂.)

Very elongate, narrow, dull, finely pubescent, and with a few scattered erect hairs; griseo-fuscous or obscure testaceous (probably reddish or greenish in life), the sides of the pronotum, the nervures of the corium, and the base of the third antennal joint pale; the legs greenish, fading to stramineous, the apices of the femora and the tibiæ usually reddish. Head elongate, much narrowed posteriorly, armed with two short spines or tubercles, tumid behind the eyes, the latter moderately large; antennæ very slender, longer than the body, the third joint slender in the male. Pronotum longer than the head, armed with two long, slender spines on the disc of the posterior lobe and with a long spine at each of the lateral angles; the posterior lobe rugulose, and with two short carinæ on the disc in front; the anterior lobe transversely wrinkled, with obtuse tuberculiform angles. Scutellum produced into a short, obtuse, horizontal process behind. Elytra slightly longer than the abdomen, the latter unarmed at the sides; the elytra with the discoidal area elongate. Legs hairy, very long and slender, the anterior femora incrassate.

Length 12½–14, breadth 2–3 millim. (♂ ♀.)

Hab. GUATEMALA, Aceituno and San Gerónimo (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui, Caldera (*Champion*).

Eleven specimens. Superficially very like *Zelus tetracanthus*, Stål, but more slender, with the head more narrowed behind, &c. The first joint of the rostrum is much longer than the second. In some examples the femora and tibiæ are greenish towards the base. The third antennal joint is slender in the males. The females have the abdomen gradually widened to the apex of the fifth segment. A specimen from Chiriqui is figured.

7. **Repipta mucosa,** n. sp. (Tab. XVI. fig. 17, ♂.)

Moderately elongate, narrow, slender, dull, finely pubescent and also with a few scattered erect hairs, the pleura and the basal margin of the pronotum clothed with an agglutinated whitish tomentum; rufo- or griseo-fuscous above, paler beneath, the sides of the venter and the dorsal surface of the abdomen sanguineous in fresh specimens, the connexival margins pale; the antennæ blackish or fuscous, the first joint usually with a pale ring towards the apex, the third joint flavous at the base; the legs stramineous or testaceous, the apices of the femora and the bases of the tibiæ obscurely annulated with fuscous. Head about as long as the pronotum, tumid behind the eyes, and considerably narrowed posteriorly, armed with two moderately long acute spines, the eyes a little prominent; antennæ very slender, longer than the body, the third joint in the male thickened at the base. Pronotnm armed with two long slender spines on the disc of the posterior lobe and with a similar spine at each of the lateral angles; the posterior lobe flattened along the middle of the disc; the anterior angles tuberculiform, transverse. Scutellum flattened at the apex. Elytra slightly longer than the abdomen, the discoidal area short. Abdomen unarmed at the sides. Legs pilose, slender, the anterior femora thickened towards the base, the hind femora (when extended backwards) reaching very little beyond the fourth abdominal segment.

Length 8–10, breadth $1\frac{1}{2}$–2 millim. (♂ ♀.)

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*).

A common insect in Chiriqui. Allied to *R. gracilis*, but much smaller and less elongate, the legs relatively much shorter, the posterior lobe of the pronotum smoother, the first joint of the rostrum not much longer than the second, the discoidal area of the elytra short. *R. mucosa* is also very like *Zelus nugax* and other small species of that genus, but it is easily separable therefrom by the short second joint of the rostrum.

8. **Repipta miniata,** n. sp. (Tab. XVI. figg. 18, 18 *a*, ♂.)

Elongate, rather slender, sparsely pilose; vermilion-red, fading to stramineous, the membrane yellowish-hyaline, the pronotal spines and carinæ yellowish; the antennæ fuscous, the basal joint obscurely annulated with stramineous, the two outer joints sometimes ferruginous; the legs stained or irregularly annulated with fuscous, the anterior femora with a fuscous line along their upper edge. Head comparatively short, armed with two long spines, the eyes prominent and rather large in both sexes; antennæ very long and slender, joints 1 and 3 about equal in length, 2 short, 4 longer than 2, 3 slightly thickened in the male. Pronotum about one-half longer than the head, armed with two very long spines on the disc of the posterior lobe and with a very long spine at each of the lateral angles; the posterior lobe rugulose, and with two anteriorly converging carinæ extending forwards from the base of the spines, the space between the carinæ flattened; the anterior lobe deeply sulcate down the middle, and with obtuse tuberculiform angles. Scutellum produced at the apex into a rather long horizontal dentiform process. Elytra considerably longer than the abdomen; the membrane with the basal area about twice as long as the outer one, the latter strongly transverse. Connexival segments 1–5 each armed with a short spine at their outer apical angles, the spines becoming very short posteriorly; the sixth segment with a rather long curved spine in the male and a short one in the female. Legs very elongate, slender, the anterior femora incrassate. Terminal genital segment of the male armed with a short spine at the apex.

Length to the apex of the elytra $14\frac{1}{2}$–$16\frac{1}{2}$, breadth $2\frac{1}{2}$–$3\frac{1}{2}$ millim. (♂ ♀.)

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*).

Two males and one female. Differs from *Repipta*, as defined by Stål, in the spinose sides of the abdomen. It closely approaches the genus *Debilia*, but has a differently formed post-scutellum, longer elytra, and more obtuse spines at the outer apical angles of the sixth connexival segment. This insect bears a certain superficial resemblance to some of the similarly coloured species of *Saica*.

ROCCONOTA.

Rocconota, Stål, Öfv. Vet.-Ak. Förh. xvi. p. 370 (1859), xxiii. p. 293 (1866); Enum. Hemipt. ii. pp. 69, 79.

It is doubtful if this Tropical-American genus can be retained as distinct from *Repipta*, Stål. The species here referred to *Rocconota* have the anterior femora more or less incrassate, the third antennal joint slender in both sexes *, the abdomen with one or more of the basal segments armed with a spine at the outer apical angles (except in *R. tuberculigera*), the head and posterior lobe of the pronotum armed with long spines or tubercles, the outer area of the membrane nearly or quite as long as the inner. *R. octispina* should perhaps be separated, it having a differently formed scutellum.

a. Scutellum raised along the middle posteriorly, the post-scutellum more or less produced at the apex, not clothed with agglutinated tomentum.
  a'. Anterior lobe of the pronotum with two prominent conical tubercles; abdominal segments 1 and 2 spinose at their outer apical angles . . *rufotestacea*, n. sp.
  b'. Anterior lobe of the pronotum unarmed.
    a''. Abdomen with the first and second segments spinose at their outer apical angles: body very sparsely pilose beneath . . . . . *læviceps*, n. sp.
    b''. Abdomen with the first segment only spinose at the outer apical angles.
      a'''. Body closely pubescent beneath, the venter with smooth bare spots; the knees sometimes speckled or annulated with fuscous. *annulicornis*, Stål.
      b'''. Body very sparsely pilose beneath; the legs very distinctly annulated with fuscous . . . . . *hystricula*, n. sp.
    c''. Abdomen unarmed at the sides; scutellum produced into an upwardly curved spine . . . . . *tuberculigera*, Stål.
b. Scutellum flattened, the post-scutellum not produced at the apex, clothed with a dense white agglutinated tomentum; anterior lobe of the pronotum with two prominent conical tubercles; abdominal segments 1–4 strongly spinose at their outer apical angles . . . . . *octispina*, Stål.

1. **Rocconota rufotestacea**, n. sp. (Tab. XVI. fig. 19, ♀.)

♀. Very elongate, sparsely pilose; rufo-testaceous, the membrane smoky-hyaline, with the nervures partly fuscous, the four hinder femora obscurely annulated with darker colour near the apex (perhaps due to discoloration), the long spines on the posterior lobe of the pronotum black at the base in front and flavous at the tip. Head elongate, smooth, armed with two long spines; antennæ long and slender. Pronotum a little longer than the head, armed with two blunt divergent spines on the disc of the anterior lobe, and with two long acute spines on the posterior lobe and a similar spine at each of the lateral angles; the posterior lobe rugulose and with indications of two faint anteriorly converging carinæ on the disc extending from the spines forwards; the anterior lobe smooth and sulcate, with the angles subconically tuberculate. Scutellum produced at the apex into a short horizontal dentiform process. Elytra slightly longer than the abdomen, the discoidal cell moderately long, the basal area of the membrane longer than the outer one.

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* The males of *R. rufotestacea* and *R. læviceps* are unknown.

Connexival segments 1 and 2 each armed with a curved spine at the outer apical angles. Legs very elongate; anterior femora strongly incrassate.

Length 21, breadth of the abdomen $4\frac{3}{4}$ millim.

Hab. MEXICO, Atoyac in Vera Cruz (*Schumann*).

One specimen. This species is very like *Heza similis*, agreeing with it in the armature of the pronotum, but differing from it in the non-plicate mesopleura, as well as in the posteriorly narrowed head, &c. The insect is probably bright red in life.

2. **Rocconota læviceps,** n. sp. (Tab. XVI. fig. 20, ♀.)

♀. Elongate, rather robust, shining, sparsely pilose; testaceous, the lateral portions of the head slightly infuscate, the pronotum broadly nigro-fuscous at the sides, the tips of the spines flavous, the corium fuscous to near the tip, the inner basal portion excepted, the connexivum with a series of black spots; the antennæ with joints 1 and 2 flavo-testaceous, annulated with fuscous, 3 and 4 ferruginous, 3 flavous at the base; the femora each with two faint annuli towards the apex, and the tibiæ with a single annulus near the base, dilute fuscous. Head a little shorter than the pronotum, smooth and shining, armed with two very long spines. Pronotum with two long spines on the disc of the posterior lobe and a long outwardly-directed spine at each of the lateral angles; the anterior lobe transversely wrinkled, smooth, with the tuberculiform angles obtuse and prominent; the posterior lobe rugulose. Scutellum with an upwardly-curved spine at the apex. Abdomen wider than, and nearly reaching the apex of, the elytra, the first two connexival segments each armed with a rather long spine at the outer apical angles. Venter smooth and shining.

Length 14; breadth of the pronotum $3\frac{3}{4}$, of the abdomen $4\frac{3}{4}$ millim.

Hab. GUATEMALA, Senahu in Vera Paz (*Champion*).

One specimen. Very like *R. annulicornis*, but smoother and more shining above and beneath, the second connexival segment, as well as the first, armed with a long spine, the anterior angles of the pronotum obtuse, the under surface clothed with long hairs only. The head is much more elongate than in *R. octispina*.

3. **Rocconota annulicornis.** (Tab. XVI. fig. 21, ♂.)

Heza annulicornis, Stål, Enum. Hemipt. ii. p. 77 [1]; Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 283 [2].

Hab. NORTH AMERICA, Texas, Lower California [2].—MEXICO (*Sichel and Bilimek, in Mus. Vind. Cæs.*), Vera Cruz (*Sallé* [1], *in Mus. Holm.*), Atoyac (*H. H. Smith*), San Lorenzo (*M. Trujillo*), Temax in North Yucatan (*Gaumer*); GUATEMALA, Paso Antonio (*Champion*).

We have received six examples of this species, and three others have been seen, inclnding one of the types. There is no trace of a tubercle or plica on the mesopleura in front, the insect therefore cannot belong to *Heza*. *R. annulicornis* is closely allied to *R. tuberculigera*, but differs from it in having the first connexival segment armed with a spine at the outer apical angles; it is also more pubescent, the scutellum is less produced at the apex, and the pronotal spines are flavous at the tip. The basal joints of the antennæ are more or less distinctly annulated with brownish or fuscous, as are also the femora towards the apex and the tibiæ at the base. The under surface is very

finely and closely pubescent, as well as sparsely pilose, the longer hairs arising from small bare spots.

The males have an upwardly curved spine at the apex of the last genital segment, and the third antennal joint slender. The single specimen obtained at Paso Antonio, from which our figure is taken, has the legs and antennæ much more distinctly annulated than in any of the Mexican examples before me.

4. **Rocconota hystricula,** n. sp. (Tab. XVI. fig. 22, ♂.)

Elongate, pilose, and also clothed with a fine scattered pubescence, shining testaceous, the head and the anterior lobe of the pronotum dilute fuscous, the posterior lobe nigro-fuscous, with the base broadly, and the tips of the spines, like those of the head, flavo-testaceous; the corium sometimes fuscous between the nervures, the membrane with the longitudinal nervure more or less infuscate, the abdomen above flavo-testaceous, broadly, transversely fasciated with fuscous, the venter broadly infuscate down the sides, the dark portions enclosing a submarginal series of pale spots; the antennæ with joints 1 and 2 flavous, annulated with fuscous, 3 and 4 ferruginous, 3 flavous at the base; the legs flavous, broadly annulated with fuscous. Head nearly as long as the pronotum, smooth, armed with two long spines, the eyes prominent; antennæ very elongate, slender, similarly formed in both sexes. Pronotum armed with two long spines on the disc of the posterior lobe, and with a long spine at each of the lateral angles; the anterior lobe transversely wrinkled, smooth, with the angles obtuse and tuberculiform; the posterior lobe rugulose. Scutellum produced into a short obtuse prominence at the apex. Elytra considerably longer than the abdomen. First connexival segment armed with a spine at the outer apical angles, the other segments subangularly dilated at the sides behind. Anterior femora feebly incrassate.

Length 14½–19, breadth of the abdomen 3–5 millim. (♂ ♀.)

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*).

Two males and one female. Near *R. annulicornis*, but with the legs more broadly annulated with fuscous, the body more sparsely pubescent, the elytra relatively longer, with the longitudinal nervure of the membrane more or less infuscate, the anterior angles of the pronotum more obtuse, the under surface with long scattered hairs only.

5. **Rocconota tuberculigera.** (Tab. XVI. fig. 23, ♂.)

Repipta tuberculigera, Stål, Stett. ent. Zeit. 1862, p. 447 [1].
Rocconota tuberculigera, Stål, Enum. Hemipt. ii. p. 79 [2].

Hab. Mexico (*Mus. Holm.* [1 2]; *coll. Signoret* [1], *in Mus. Vind. Cæs.*), Milpas in Durango (*Forrer*), Dos Arroyos, Venta de Peregrino, Acapulco (*H. H. Smith*); Guatemala, San Gerónimo, El Reposo (*Champion*); Panama (*Boucard*).

In some of our examples of this species the spines on the head and pronotum are quite short, as in the types (one of which is before me), and the two on the disc of the posterior lobe of the pronotum are occasionally obsolete; but in others they are very elongate. The abdominal segments are unarmed at the sides in both sexes. The apex of the scutellum is produced into a rather stout upwardly curved spine. The males have the third antennal joint slender, and the terminal genital segment armed with a short tooth at the apex. A specimen from Acapulco is figured.

6. **Rocconota octispina.** (Tab. XVI. figg. 24, 24 *a*, ♂.)

Rocconota octispina, Stål, Stett. ent. Zeit. 1862, p. 448[1]; Enum. Hemipt. ii. p. 79[2].

Hab. MEXICO (*coll. Signoret*[1 2], *in Mus. Vind. Cæs.*), Teapa in Tabasco (*H. H. Smith*); GUATEMALA, San Gerónimo, Volcan de Atitlan, Mirandilla, Paso Antonio (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

We possess twelve specimens of this peculiar species, agreeing with the type (♀) now before me. In this insect the scutellum is covered with a dense white agglutinated tomentum, forming a heart-shaped patch, and the pronotum, corium, and pleura are set with widely scattered raised white points (similar to those visible in *Heza similis*); the abdominal segments 1–4 in both sexes are each armed with a spine at their outer apical angle, that on the fourth segment being much shorter than the others. The spines on the head and posterior lobe of the pronotum are long, and on the anterior lobe of the latter there are two prominent conical tubercles. The males have the third joint of the antennæ slender, and the terminal genital segment armed with a short spine in the centre at the apex. A specimen from Bugaba is figured.

SOSIUS, n. gen.

Head rather more than half the length of the pronotum, tumid behind the eyes, narrowing posteriorly into a short neck, armed above in front with two long, anteriorly curved, acute spines, and with a short spine on each of the genæ, the eyes moderately large in both sexes; rostrum with joint 1 as long as 2 and 3 united; antennæ long and slender, joint 3 not thickened in the male. Pronotum as long as broad, subpentagonal, deeply emarginate behind, the posterior lobe with two long acute spines on the disc and a similar spine at each of the lateral angles. Scutellum with an obtuse prominence at the apex. Elytra about reaching the apex of the abdomen; the outer area of the membrane slightly shorter than the inner. Abdomen elongate, narrow at the base, gradually widening to the apex of the fourth segment, the fifth and sixth segments abruptly and conjointly foliaceous in both sexes, the fifth acutely produced at the outer apical angles, the sixth rapidly narrowing behind, with the apex rounded or subtruncate. Legs moderately long, the anterior pair stout, the two other pairs slender; anterior femora greatly incrassate and about as long as the hind femora, the latter not reaching beyond the apex of the fourth ventral segment. Mesopleura neither plicate nor tuberculate. Claws appendiculate.

This genus is readily recognizable by the conjointly and abruptly dilated fifth and sixth connexival segments, the margins of these segments (as in certain species of *Phymata*) forming an acute-angled foliaceous plate. The legs, compared with the abdomen, are rather short, the anterior pair stout, the two other pairs slender. *Sosius* approaches *Rocconota*, Stål.

1. **Sosius foliaceus,** n. sp. (Tab. XVI. figg. 25, 25 *a*, ♂.)

Obscure ferruginous, sparsely clothed with greyish pubescence; the antennæ with joint 1 fuscous, biannulated with flavous or ferruginous, the other joints ferruginous; the anterior legs fuscous or fusco-ferruginous, the femora indistinctly annulated with ferruginous, the tarsi flavescent; the intermediate and hind legs, the second and third joints of the rostrum, and in one specimen the first three ventral segments, flavous, the femora fuscous at the apex and sometimes with a fuscous ring beyond the middle. Pronotum sulcate

down the middle of the anterior lobe and with two converging carinæ on the disc of the posterior lobe extending from the spines forwards, the anterior angles obtuse.

Length 12–15½ millim. (♂ ♀.)

Hab. Mexico, Atoyac in Vera Cruz (*H. H. Smith*), Temax in N. Yucatan (*Gaumer*); Panama, Bugaba (*Champion*).

Three females and one male. The spines on the upper part of the head are long and curved forwards, those on the genæ being short. The outer apical angles of the fifth connexival segment are very acutely produced in the Atoyac specimens, forming a sharp spine. A male from Atoyac is figured.

LINDUS.

Lindus, Stål, Rio Jan. Hemipt. ii. p. 61 (1862); Öfv. Vet.-Ak. Förh. xvi. p. 369 (1859); Enum. Hemipt. ii. pp. 69, 79.

This genus is based upon a single species, *L. sahlbergi*, Stål, from Brazil. The second species now added, also known from a single female specimen only, is very like it, agreeing perfectly in the structure of the head, pronotum, &c.; but has the abdomen longer and less dilated posteriorly, with the sixth connexival segment, as well as 1–5, armed with a long spine at the outer apical angles. Both insects have a small discoidal area on the corium adjoining the base of the membrane, but in *L. ericius* the two areas of the membrane are unequal in size. The type of *L. sahlbergi* has been kindly communicated by Dr. Aurivillius.

1. **Lindus ericius**, sp. n. (Tab. XVI. fig. 26, ♀.)

♀. Elongate, sparsely pubescent and also clothed with long, fine, scattered hairs; above fuscous, the head in front and at the base, the pronotum with a space along the middle of the disc, the tips of the spines, and the basal angles, and the apex of the scutellum, stramineous; the elytra with the nervures pale, the membrane subhyaline, with a spot opposite the apex of the corium and another on the median nervure fuscous; the abdomen stramineous, the connexival segments banded or spotted with nigro-fuscous; beneath stramineous, the apical half of the venter in great part nigro-fuscous; the antennæ stramineous, with the two basal joints annulated with fuscous; the legs stramineous, annulated with fuscous and black. Head much shorter than the pronotum, strongly narrowed behind, armed above with two long erect spines before the eyes, which are large and prominent; antennæ longer than the body, slender, joint 1 more than twice as long as 2, 2 shorter than 4. Pronotum hexagonal, the posterior lobe much widened laterally towards the base, with two anteriorly converging carinæ on the disc connecting the two lobes; the posterior lobe armed with two long, backwardly directed spines on the disc and a long, outwardly directed spine at each of the lateral angles. Scutellum with an obtuse prominence at the apex. Elytra extending far beyond the abdomen, the inner area of the membrane a little longer than the outer one. Abdomen widening to the apex of the fifth segment, and narrowing thence to the apex, the apex broadly subtruncate, the outer apical angles of the connexival segments 1–6 each armed with a long spine. Legs long and hairy; the femora somewhat thickly pilose at the apex, the anterior pair strongly incrassate, the latter, as well as the anterior tibiæ, closely ciliate within.

Length (to apex of the elytra) 13½, breadth (of the fifth segment of the abdomen) 3½ millim.

Hab. Panama, Bugaba (*Champion*).

One specimen.

CORCIA.

Corcia, Stål, Öfv. Vet.-Ak. Förh. xvi. p. 368 (1859); Hemipt. Fabr. i. p. 103, nota; Enum. Hemipt. ii. pp. 69, 79.

The two Central-American species referred to this genus differ from the typical forms, *C. columbica* and *C. capitata*, Stål, from Colombia, in having the abdomen unarmed at the sides and the spines on the head reduced to small tubercles. All of them have long spines on the posterior lobe of the pronotum, a comparatively short, broad abdomen, and long elytra. *C. sexdens* and *C. spinosa* (Fabr.), from Guiana, evidently do not belong here.

1. **Corcia nigricornis,** n. sp. (Tab. XVII. fig. 1, ♀.)

♀. Elongate, rather broad, very sparsely pilose; reddish-ochreous fading to stramineous, beneath stramineous; the head with a **V**-shaped mark in front, a cordiform spot surrounding the ocelli, and the upper part of the neck, the pronotum with an oblong mark or spot on the disc of the posterior lobe and a spot on the anterior lobe, the scutellum in the middle, and the clavus, black; the fourth and fifth connexival segments each with a broad transverse fascia above and beneath, and the ventral segments 1–5 with a narrower fascia, black; the membrane yellowish-hyaline, with the longitudinal median nervure slightly infuscate; the antennæ black, with the apex of the first joint and the base of the second paler; the two hinder femora with indications of a fuscous ring in one specimen. Head a little shorter than the pronotum, the usual spines before the eyes reduced to two small tubercles, the eyes moderately prominent; antennæ long and slender, joint 1 more than three times the length of 2. Pronotum armed with two long spines on the disc of the posterior lobe and with a long spine at each of the lateral angles; the anterior angles tuberculate, but not very prominent; the posterior lobe with very fine punctures showing through from beneath. Elytra nearly twice as long as the abdomen.

Length to the apex of the abdomen 11, to that of the elytra 15; breadth 3–4 millim.

Hab. Panama, Volcan de Chiriqui 3000 feet (*Champion*).

Two specimens. Very like *C. columbica*, Stål, from Colombia, the type of which is before me, but differing from it (and from *C. capitata*, Stål, also, which is probably a colour-variety of the same species) in the more elongate head, with the spines reduced to small tubercles, the less prominent anterior angles of the pronotum, and the unarmed sides of the abdomen. In *C. columbica*, moreover, each of the connexival segments is banded with black, and the main nervures of the membrane are nigro-fuscous.

2. **Corcia costaricensis,** n. sp. (Tab. XVII. fig. 2, ♂ *.)

♂. Elongate, rather broad, rufo-stramineous fading to stramineous, beneath paler, with the light-coloured portions of the ventral surface white; the head black above, except at the sides between and behind the eyes and a median line in front; the pronotum with a transverse anteriorly excised fascia before the base, including the four spines, another fascia on the posterior lobe in front, the two connected along the median line, and a third fascia on the anterior lobe before the apex, black; the scutellum broadly black along the middle to near the apex; the elytra with a little more than the median third of the corium, the clavus, and the nervures of the membrane in great part, black; the fourth and fifth connexival segments each with a very broad transverse fascia above and beneath, and the ventral segments 1–5 with a narrower fascia, black; the antennæ black, the third joint stramineous at the base, the first joint indistinctly

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* The elytra are incorrectly drawn in our figure: the neuration should be as in *C. nigricornis*..

annulated with fusco-testaceous; the two hinder femora with indications of a fuscous ring a little beyond the middle. Head shorter than the pronotum, armed with two small tubercles before the eyes, the latter rather large and prominent; antennæ as in *C. nigricornis*. Pronotum armed with two long spines on the disc of the posterior lobe and with a long spine at each of the lateral angles; the anterior angles tuberculate and not prominent; the posterior lobe with very fine punctures showing through from beneath. Elytra nearly twice as long as the abdomen.

Length to apex of the abdomen $10\frac{1}{2}$, to that of the elytra about 14; breadth 3 millim.

Hab. Costa Rica, Talamanca (*Mus. Holm.*).

One specimen. Perhaps a variety of *C. nigricornis*?

CASTOLUS.

Castolus, Stål, Öfv. Vet.-Ak. Förh. xv. p. 447 (1858), xxiii. p. 294 (1866); Enum. Hemipt. ii. pp. 69, 80.

Spinda, Stål, Öfv. Vet.-Ak. Förh. xvi. p. 371 (1859), xxiii. p. 294 (1866).

A Tropical-American genus including six described species, three of which inhabit our region, whence two others are now added.

a. Lateral angles of the pronotum unarmed.
  a'. Posterior lobe of the pronotum, the margins excepted, and a broad fascia on the elytra, not reaching the apex and sometimes extending to the base, nigro-fuscous or black; eyes rather small in the male. *plagiaticollis*, Stål.
  b'. Posterior lobe of the pronotum, the margins excepted, the head in part, and a narrow transverse fascia below the base of the elytra, black, the narrow apical portion of the corium sanguineous, the membrane smoky; eyes large in the male . . . . . *tricolor*, n. sp.
b. Lateral angles of the pronotum with a very short tooth; the head in part, the small spots on the disc of the posterior lobe of the pronotum, and a streak at the base of the clavus, black . . . . . *trinotatus*, Stål.
c. Lateral angles of the pronotum with a rather long stout tooth; elytra and disc of the pronotum in great part fuscous; legs pale, fusco-annulate, the anterior femora very stout . . . . . *subinermis*, Stål.
d. Lateral angles of the pronotum subangularly dilated; pronotum, clavus, corium, and legs nigro-piceous or black, the posterior lobe of the pronotum with the basal and lateral margins sanguineous . . . . *rufomarginatus*, n. sp.

1. **Castolus plagiaticollis.** (Tab. XVII. fig. 3, ♀.)

Castolus plagiaticollis, Stål, Öfv. Vet.-Ak. Förh. 1858, p. 447[1]; Enum. Hemipt. ii. p. 81[2].
Repipta plagiaticollis, Stål, Stett. ent. Zeit. 1862, p. 447[3].

Hab. Mexico[3] (*Mus. Holm.*[1 2]; *coll. Signoret, in Mus. Vind. Cæs.*; *Sallé*), Presidio de Mazatlan (*Forrer*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Atoyac in Vera Cruz (*Schumann*; *H. H. Smith*), Jalapa (*Höge*), Chiapas (*M. Trujillo*); Guatemala, Cubilguitz and San Gerónimo in Vera Paz, Paraiso, Capetillo (*Champion*); Panama (*Boucard*), Bugaba, Volcan de Chiriqui (*Champion*).

Var. The clavus and corium, and sometimes the head above, the cylindrical basal portion excepted, black or fuscous. (♂ ♀.)

Hab. MEXICO, Temax in North Yucatan (*Gaumer*); GUATEMALA, Cubilguitz in Vera Paz (*Champion*).

Amongst our long series of this species there are three specimens only of the dark variety. The males have the third antennal joint thickened to about the middle, and the terminal genital segment emarginate at the apex and armed with a long, slender, upwardly curved spine. A specimen from Atoyac is figured.

2. **Castolus tricolor,** n. sp. (Tab. XVII. fig. 4, ♂.)

Stramineous or ochraceous, shining, sparsely pubescent; the head, the cylindrical basal portion excepted, partly or almost entirely black above; the pronotum with the posterior lobe black, the anterior and hind margins excepted; the elytra with a common transverse black fascia some distance below the base, the corium thence to the apex sanguineous, the membrane subhyaline; the abdomen with the dorsal segments, the connexivum, and the sides and apex of the venter, sanguineous, the dorsal segments 1–5 more or less suffused with black in the middle, the ventral segments with narrow transverse black fasciæ; the antennæ piceous or black, with joints 3 and 4 paler; the legs piceous or black, with the intermediate and hind femora partly or entirely stramineous to near the apex, the intermediate femora sometimes with a faint median ring only. Head much narrowed behind, armed with a short conical tubercle on each side before the eyes, the latter large and prominent in the male, smaller in the female; antennæ with joint 1 slightly longer than 3, 2 short, 4 longer than 2. Pronotum a little longer than the head, with the lateral angles rounded, and the anterior angles obtuse; the anterior lobe smooth, sulcate down the middle, the posterior lobe with two short anteriorly converging carinæ on the disc in front. Elytra extending far beyond the abdomen.

♂. Antennæ with joint 3 thickened to near the middle. Last genital segment armed with a long filiform spine at the apex.

Length (to apex of the elytra) $10\frac{3}{4}$–15, breadth $2\frac{1}{4}$–$3\frac{1}{2}$ millim. (♂ ♀.)

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*); BRITISH HONDURAS (*Blancaneaux*); GUATEMALA, Las Mercedes, Cerro Zunil, Zapote, Capetillo (*Champion*); PANAMA, Volcan de Chiriqui, Caldera, Tolé (*Champion*).

Found in plenty in Guatemala, sparingly elsewhere. This very distinct species, which appears to have been unknown to Stål, is a close ally of *C. plagiaticollis*, but differs from it in the coloration of the elytra, and in having much larger eyes in the male. A specimen from Teapa is figured.

3. **Castolus trinotatus.** (Tab. XVII. fig. 5, ♀.)

Spinda trinotata, Stål, Öfv. Vet.-Ak. Förh. 1866, p. 297 (♀)[1].

Castolus (*Spinda*) *trinotatus,* Stål, Enum. Hemipt. ii. p. 80[2].

Hab. MEXICO (*Mus. Holm.*[1 2]).

Allied to *C. plagiaticollis* and *C. tricolor*, but with a short tooth at the lateral angles of the pronotum and very differently coloured. The type is figured.

4. **Castolus subinermis.** (Tab. XVII. fig. 6, ♀.)

Repipta subinermis, Stål, Stett. ent. Zeit. 1862, p. 447 (♀)[1].
Castolus (*Spinda*) ***subinermis,*** Stål, Enum. Hemipt. ii. p. 80[2].

Hab. Mexico (*Mus. Holm.*[1 2]; *coll. Signoret*[1], *in Mus. Vind. Cæs.*).

We have not received a specimen of this species, our figure of which is taken from one of the types. It differs from *C. plagiaticollis* in having the lateral angles of the pronotum armed with a stout outwardly projecting tooth, the head longer, and the legs much stouter, the femora especially. The expanded postero-lateral margins of the pronotum are continued beneath the lateral spines, so that the latter appear to be emarginate behind.

5. **Castolus rufomarginatus,** n. sp. (Tab. XVII. fig. 7, ♀.)

♀. Elongate, rather robust, somewhat shining; nigro-piceous or black, the head, a streak on each side behind excepted, and some spots on the anterior lobe of the pronotum, obscurely rufescent; the posterior lobe of the pronotum at the sides and base, the scutellum in great part, the pleural margins, the connexivum, and the dorsal segments of the abdomen, except along the middle, sanguineous, the membrane smoky; clothed above and beneath with very short grey decumbent pubescence and with scattered intermixed erect hairs, the legs thickly pilose. Head gradually narrowing behind, armed with a short conical tubercle on each side before the eyes, the latter large; antennæ slender, joint 1 slightly longer than, and 2 not half the length of, 3. Pronotum with the posterior lobe angularly dilated at the sides, rather broadly margined at the base laterally, the base truncate in the middle, the disc with two short anteriorly converging carinæ in front; the anterior lobe sulcate down the centre, the anterior angles obtuse and tuberculiform. Elytra extending beyond the abdomen. Legs rather stout, the anterior femora incrassate.

Length 12–12½, breadth 5–5½ millim.

Hab. Mexico, Omealca in Vera Cruz (*M. Trujillo*); Guatemala, Chacoj in Vera Paz (*Champion*).

Two specimens, the one from Vera Paz being immature and in a bad state of preservation. Allied to *C. subinermis*, Stål, but very differently coloured, and with the lateral angles of the pronotum unemarginate behind. It is very like *Repipta fuscipes* in general appearance. In the Mexican example, which we figure, the venter is thickly cinereo-pubescent, with a series of transverse bare spaces along the sides.

HIRANETIS.

Hiranetis, Spinola, Essai sur les Hémipt. p. 112 (1837); Stål, Öfv. Vet.-Ak. Förh. xxiii. p. 294 (1866); Enum. Hemipt. ii. pp. 69, 82.

A Tropical-American genus including three or four species. It is very closely allied to *Graptocleptes.* These insects greatly resemble various Ichneumonidæ and Braconidæ, and they are variable in colour. The head above and beneath is densely pilose, and the wings and elytra are banded with black; the third antennal joint is thickened in the males.

1. **Hiranetis braconiformis.** (Tab. XVII. figg. 8, 8 *a*, ♂, var.; 9, ♀.)

La Punaise Guepe-Ichneumon, Stoll, Représ. des Punaises, p. 86, t. 21. fig. 147 (1788) [1].
Myocoris braconiformis, Burm. Handb. der Ent. ii. p. 226 [2]; Trans. Ent. Soc. Lond. ii. p. 107 [3].
Hiranetis braconiformis, Stål, Enum. Hemipt. ii. p. 82 [4].
Myocoris pompilodes, Burm. Trans. Ent. Soc. Lond. ii. p. 106 [5].
Hiranetis pompilodes, Stål, Enum. Hemipt. ii. p. 82 [6].

Hab. MEXICO, Omealca near Orizaba (*M. Trujillo*); GUATEMALA, San Juan, Teleman, and Chacoj in Vera Paz (*Champion*); COSTA RICA, Caché (*Rogers*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).—GUIANA [1]; BRAZIL [2–6].

We possess a long series of this species, varying in the colour of the pronotum and also to a certain extent in that of the femora. In many of the specimens the pronotum is entirely rufo-testaceous (*braconiformis*, Burm.); but in others, both from Guatemala and Chiriqui, it is partly or entirely black, the basal margin or a subtriangular patch on the disc behind being pale in some examples (*pompilodes*, Burm.). The intermediate and hind femora are broadly, and the anterior pair sometimes narrowly, black at the base; the hind pair have the apex broadly, and rarely a median ring, fuscous or black, and the intermediate pair are often infuscate at the apex. The males have the third antennal joint thickened at the base. *H. braconiformis* is very like *Graptocleptes cingulatus*, Stål, from Colombia; but in the latter the head is armed with two spines, the legs are shorter, the head is clothed with shorter hairs, the scutellum is produced into an acute tooth behind, &c. It resembles various large Braconidæ occurring in the same districts. We are indebted to Dr. Aurivillius for the loan of specimens of *H. braconiformis* and *G. cingulatus.*

We figure a pair from Bugaba, showing the variation in colour amongst specimens from the same locality.

GRAPTOCLEPTES.

Graptocleptes, Stål, Öfv. Vet.-Ak. Förh. xxiii. p. 294 (1866); Enum. Hemipt. ii. pp. 69, 81.

A Tropical-American genus including eight described species, one of which occurs in our region. The species now added is extremely variable in colour. The males may be known by their large and prominent eyes and the thickened third antennal joint.

Head flattened and with a few scattered hairs only beneath; body flavo-testaceous, the pronotum and elytra variable in colour, the elytra with the apex and sometimes a median fascia also black or fuscous . . . *varians*, n. sp.
Head tumid and densely pilose beneath; body black, the venter sanguineous. *sanguineiventris,* Stål.

1. **Graptocleptes varians,** n. sp. (Tab. XVII. figg. 10, 10 *a*, ♂; 11, 12, 13, ♀.)

Elongate, rather shining, sparsely pubescent and also clothed with scattered erect hairs; ochreous or flavous, the anterior lobe of the pronotum and the venter sometimes sanguineous; the head black, with the neck flavescent, or entirely flavescent, the rostrum included; the pronotum with a black vitta down each side

of the disc, the black markings in some specimens extending to the sides and apex (leaving only a triangular patch on the disc behind yellow) and in others entirely obsolete; the elytra with the base of the clavus, the base or outer part of the corium, and a large patch of variable extent at the apex of the membrane, and sometimes a transverse median fascia, fuscous or black, the clavus and corium in some specimens almost entirely infuscate (and the membrane also) and in others entirely ochreous; the wings flavo-hyaline, the apex only sometimes narrowly infuscate; the antennæ black; the legs black or fuscous, the anterior and intermediate femora to a greater or less extent flavescent at the base, the intermediate and posterior pairs with a flavescent ring before the tip, the intermediate femora sometimes flavescent to near the apex. Head nearly as long as the pronotum, with a few widely scattered hairs only above and beneath, armed with two short spines or conical tubercles above; the eyes large and prominent in the male, smaller in the female; antennæ with joint 3 greatly thickened in its basal half in the male. Pronotum with rather prominent, laterally projecting anterior angles, both lobes depressed down the middle, the posterior lobe with indications of two converging carinæ on the disc anteriorly, the lateral angles obtuse and somewhat tumid. Scutellum produced into a short tooth behind. Elytra extending far beyond the abdomen. Legs rather slender. Rostrum with joint 1 almost as long as the two others united.

Length to apex of the elytra 13–13½ millim. (♂ ♀.)

Hab. PANAMA, Bugaba, Volcan de Chiriqui, Caldera (*Champion*).

This very variable species is not uncommon in Chiriqui, and amongst the twenty-seven examples examined four only have the dark median fascia on the elytra: three have the corium and clavus pale, except that in one of them (♂) the dark median fascia is present and crosses the corium. *G. varians* is very like the South-American *G. fasciatus* (Fabr.) (=*gracilis*, Burm.), a female specimen of which has been lent me by Dr. Aurivillius; but it differs from that species in having the head a little longer (both before and behind the eyes) and almost glabrous beneath, the antennæ more slender, the under surface and pleura almost entirely pale, the wings not fasciate, &c. The colour of the legs and upper surface is very variable: the elytra are sometimes almost entirely infuscate, but in the pale examples the dark patch is always present at the apex of the membrane; the anterior and intermediate femora are sometimes flavescent, with the apex only dark, the hind pair, however, always have the base and a ring before the apex flavescent. The fasciate form resembles *G. cingulatus*, Stål (the type of which is before me); but it is much smaller and has more slender legs, the head is almost glabrous and not at all convex beneath (convex and densely pilose beneath in *G. cingulatus*), the wings are not fasciate, the spines on the head are shorter, &c.

From *G. flavidatus*, Stål (the type of which has also been seen), it may be separated by the dark apex of the membrane. We figure four of the extreme forms.

2. **Graptocleptes sanguineiventris.** (Tab. XVII. fig. 14, ♀, var.)

Hiranetis sanguineiventris, Stål, Stett. ent. Zeit. 1862, p. 448 [1].

Graptocleptes sanguineiventris, Stål, Enum. Hemipt. ii. p. 82 [2].

Hab. MEXICO (*coll. Signoret* [1] *and Sichel, in Mus. Vind. Cæs.*; *Mus. Holm.* [2]), Cuernavaca, Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Atoyac, Teapa (*H. H. Smith*),

Temax in N. Yucatan (*Gaumer*); Guatemala, San Juan in Vera Paz (*Champion*); Panama, Bugaba (*Champion*).

We possess eleven specimens of this species and four others belonging to the Vienna Museum have been seen, including one of the (♀) types. It varies a good deal in size, and some examples have a large sanguineous patch on the disc of the posterior lobe of the pronotum. The femora usually have each a narrow pale median annulus, but this is sometimes present on the hind pair only. The males (unknown to Stål) have large and prominent eyes, the third joint of the antennæ thickened to beyond the middle, and the terminal genital segment somewhat broadly produced in the centre at the apex.

AMAUROSPHODRUS.

Amaurosphodrus, Stål, Öfv. Vet.-Ak. Förh. xxiii. p. 295 (1866); Enum. Hemipt. ii. pp. 69, 82.

A Tropical-American genus, including two species, one of which extends to the State of Panama.

1. **Amaurosphodrus alboannulatus.** (Tab. XVII. figg. 15, 15 *a*, ♀.)

Zelus alboannulatus, Stål, Öfv. Vet.-Ak. Förh. 1855, p. 189[1].
Amaurosphodrus alboannulatus, Stål, op. cit. 1866, p. 297[2]; Enum. Hemipt. ii. p. 82[3].

Hab. Panama, Bugaba, Tolé (*Champion*).—Colombia, Los Remedios[1 2 3], Bogota[3].

Seven examples, all females, like the type. This species is very like *Graptocleptes sanguineiventris*, but has stouter and more hairy legs, the posterior tibiæ are unequally incrassate, and the head is armed with two moderately long spines, the post-ocular portion being thickly pilose above and beneath. It is shining black, with the basal half of the venter bright sanguineous; the femora have each a narrow pale annulus at the middle.

ATRACHELUS.

Atrachelus, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 374 (1843); Stål, Öfv. Vet.-Ak. Förh. xxiii. p. 293 (1866); Enum. Hemipt. ii. pp. 68, 78.

The two described species of this genus are from the Southern United States and the Argentine Republic respectively; the first mentioned extends southwards to Mexico and Guatemala. A third is now added from Panama. *Atrachelus* is very imperfectly characterized by Amyot and Serville, and their figure is a bad one. The genus is easily separable from *Acholla* and *Sinea* by the unarmed anterior femora. *Phorohura*, Stål, including three species from Tropical South America, seems only to differ from *Atrachelus* in having the post-ocular portion of the head relatively longer.

1. **Atrachelus cinereus.** (Tab. XVII. fig. 16, ♂.)

Reduvius cinereus, Fabr. Ent. Syst., Suppl. p. 545 [1].

Zelus cinereus, Fabr. Syst. Rhyng. p. 287 [2].

Atrachelus cinereus, Stål, Enum. Hemipt. ii. p. 78 [3]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 327 [4].

Atrachelus heterogeneus, Amy. et Serv. Hist. Nat. Ins. Hémipt. p. 374, t. 7. fig. 4 [5].

Hab. North America, Philadelphia [3 5], Carolina [1 2], Texas [3 4].—Mexico [4], Presidio de Mazatlan (*Forrer*), Amula and Venta de Peregrino in Guerrero, Atoyac in Vera Cruz (*H. H. Smith*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*); Guatemala, Dueñas, Paso Antonio (*Champion*).

Not uncommon in Mexico, whence about twenty specimens have been seen. In both sexes of this species the connexival segments 1–5 are angularly dilated or spinose at their outer apical angles, there being considerable variation in this respect. The third antennal joint of the males is also much more thickened in some examples than in others. The abdomen is subparallel in the males, rounded at the sides in the females. An example from Amula is figured.

2. **Atrachelus tenuispinis,** n. sp. (Tab. XVII. figg. 19, 19 *a*, ♂.)

♂. Moderately elongate, narrow, opaque; fusco-ferruginous, thickly cinereo-pubescent, the pleura also with whitish tomentum; the rostrum, the cephalic spines, the connexival margins, and the basal joint of the antennæ in great part (the other joints broken off), flavous; the legs also annulated with flavous. Head armed in front with two exceedingly long, slender, erect spines, these being longer than those on the pronotum, the post-ocular portion a little longer than the ante-ocular portion; the basal joint of the rostrum reaching slightly beyond the eyes; antennæ slender. Pronotum armed with two long spines on the disc and with a similar spine at each of the lateral angles. Elytra reaching the apex of the abdomen. Abdomen with the connexival segments 4 and 5 each armed with a very short spine at their outer apical angles (the spine on the fifth segment a little longer than that on the fourth), the other segments unarmed, the sixth rounded at the apex. Legs slender, the anterior femora feebly incrassate.

Length $7\frac{1}{4}$, breadth of the abdomen $1\frac{1}{5}$ millim.

Hab. Panama, Bugaba (*Champion*).

One specimen. Narrower and more elongate than *A. cinereus*, with the fourth and fifth connexival segments only spinose, the cephalic spines exceedingly elongate, the post-ocular portion of the head relatively longer (approaching the genus *Phorobura* in this respect), the legs more slender. The antennæ are, unfortunately, imperfect.

HEZA.

Heza, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 374 (1843); Stål, Öfv. Vet.-Ak. Förh. xvi. p. 196 (1859); Hemipt. Afr. iii. p. 48; Enum. Hemipt. ii. pp. 68, 75.

Fifteen species of this American genus have been described *. They are easily

* *H. annulicornis*, Stål, is a *Rocconota*.

separable from most of their allies by the tubercle or plica on the mesopleura. The three Central-American forms may be separated thus:—

a. Abdomen in both sexes with the first segment only armed with a spine at the outer apical angles.
  a'. Pronotum and elytra with or without minute scattered points of whitish tomentum . . . . . *similis*, Stål.
  b'. Pronotum and base of the elytra with conspicuous white or golden, partly coalescent, tomentose spots . . . . . *multiguttata*, n. sp.
b. Abdomen in the male with segments 1–3 armed with a spine, and 4–6 angularly or acutely dilated, at the outer apical angles; in the female with a short spine at the outer apical angles of segments 1–3 only . . *fuscinervis*, n. sp.

1. **Heza similis.** (Tab. XVII. figg. 17, 17 *a*, ♂; 18, ♀.)

Heza similis, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 199[1]; Hemipt. Fabr. i. p. 100[2]; Enum. Hemipt. ii. p. 76[3].

Hab. Mexico, Mazatlan (*Forrer*), Tepic (*Schumann*), Amula, Teapa (*H. H. Smith*), Oaxaca (*Sallé, in Mus. Holm.*); Guatemala, Sinanja, San Gerónimo, Zapote (*Champion*); Nicaragua, Chontales (*Janson*); Panama, Bugaba, Volcan de Chiriqui, David, Caldera, Tolé (*Champion*).—Colombia (*Mus. Berol.*[1]), Bogota (*Mus. Holm.*[3]).

A common insect in Chiriqui. Our specimens vary from 15–24 millim. in length. Some of them are of an olivaceous or greenish colour. In fresh examples (as in certain species of *Rocconota*) the pronotum, scutellum, and corium are set with scattered points of whitish tomentum. The third antennal joint is slender in both sexes. *H. similis* is very like *Rocconota rufotestacea* and other species of that genus, but it is easily distinguishable from them by the plica on the mesopleura. One of Stål's Colombian specimens has been seen. We figure a pair from Bugaba.

2. **Heza multiguttata,** n. sp. (Tab. XVII. fig. 20, ♀.)

Very elongate, narrow, opaque above, shining beneath, finely pubescent and also clothed with a few scattered erect hairs; obscure ferruginous, the body beneath, the legs, and antennæ testaceous or rufo-testaceous, the elytra fuscous, with the membrane hyaline or yellowish-hyaline; the posterior lobe of the pronotum with a transverse row of six or eight spots in front, the elytra with numerous partly confluent spots on the cuneus and basal portion of the corium, as well as a small spot on the disc of the latter behind, a spot on the propleura in front, two on the mesopleura, one on the metapleura, one on the scutellum, and one on each of the posterior angles of the pronotum, white- or golden-tomentose; the legs clothed with long erect hairs. Head shorter than the pronotum, with two short erect spines, the eyes moderately large in both sexes, the neck-like basal portion cylindrical and rather stout; (antennæ imperfect). Pronotum with two blunt erect spines on the disc of the anterior lobe and laterally projecting conical anterior angles; the posterior lobe with two long acute spines on the disc and one at each of the lateral angles. Elytra extending to the apex of the abdomen. Abdomen in both sexes with the first segment only armed with a short spine at the outer apical angles, rounded at the apex. Legs very elongate, the anterior femora strongly incrassate. Rostrum with the first joint about as long as the two others united.

♂. Terminal genital segment with a rather stout, horizontal, dentiform process at the apex.

Length 16–22 millim. (♂ ♀.)

Hab. British Honduras, Belize (*Blancaneaux*: ♀); Panama, Tolé (*Champion*: ♂).

Two examples only of this curious species have been seen, the male differing from the female in having the tomentose spots golden instead of white. *H. multiguttata* belongs to the same section of the genus as *H. linotata* (Lep. & Serv.), *H. insignis*, Stål, and *H. ventralis*, Stål.

3. **Heza fuscinervis,** n. sp. (Tab. XVII. fig. 21, ♂.)

Very elongate, rather robust, opaque, thickly griseo-pubescent and also with a few scattered erect hairs, the legs pilose; griseous or griseo-testaceous, the head, pronotum, and under surface more or less streaked or spotted with fuscous, the connexival segments sometimes maculated with yellow, the nervures of the membrane partly black, the legs more or less annulated with fuscous; the pleura in fresh specimens with spots of whitish tomentum; the antennæ with joint 1 fuscous, with two pale rings, 2–4 testaceous, 2 fuscous at the apex. Head nearly as long as the pronotum, with two very long, acute, slightly curved spines, the neck-like basal portion stout and cylindrical, the eyes moderately large in both sexes. Pronotum with two blunt or subacute moderately long spines on the disc of the anterior lobe and conical, moderately prominent anterior angles; the posterior lobe with two very long acute spines on the disc and one at each of the lateral angles. Elytra extending to the apex of the abdomen. Legs very elongate, the anterior femora strongly incrassate. Rostrum with the first joint as long as the two others united.

♂. Abdominal segments 1–3 each armed with a spine and 4–6 angularly or acutely dilated at the outer apical angles, the apex of the sixth appearing deeply emarginate; terminal genital segment with an upwardly curved spine at the tip.

♀. Abdominal segments 1–3 armed with a short spine at the outer apical angles.

Length 23–29, breadth 4–6½ millim. (♂ ♀.)

Hab. Mexico, Valladolid in Yucatan (*Gaumer*); Panama, Bugaba, Tolé (*Champion*).

Three males and one female. This large species is allied to *H. sericans*, *H. oculata*, and *H. multiannulata*, Stål, from Brazil, but, to judge from the descriptions, distinct from all of them *. Males only of this group were known to Stål. The spines on the head and anterior lobe of the pronotum vary in length, and those on the latter are acute in some specimens and blunt in others. In one of the males the angles of the sixth connexival segment are acutely produced. The third antennal joint is slender in both sexes.

MONTINA.

Montina, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 363 (1843); Stål, Öfv. Vet.-Ak. Förh. xvi. p. 196 (1859); Hemipt. Afr. iii. p. 48; Enum. Hemipt. ii. pp. 68, 73.

Plœogaster, Stål, Öfv. Vet.-Ak. Förh. xvi. p. 196 (1859) (nec Amy. et Serv.).

Aristippus, Stål, Hemipt. Afr. iii. p. 48.

A Tropical-American genus including several large and peculiar insects, chiefly distinguishable by the greatly dilated sides of the abdomen.

* Dr. Aurivillius has sent me the type (♂) of *H. multiannulata*, Stål, for examination. It differs from *H. fuscinervis* in being much less elongate, and in having long acute spines at the outer apical angles of all the connexival segments, the anterior angles of the pronotum obtuse, &c.

1. **Montina nigripes.** (Tab. XVII. fig. 22, ♂.)

Montina nigripes, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 197 (♀) [1]; Enum. Hemipt. ii. p. 73 [2].

Hab. Panama, Volcan de Chiriqui (*Champion*), Colon (*Boucard*).—Brazil, Bahia [1 2].

In this species the outer margins of each of the connexival segments 1–5 are subangular towards the apex. The pronotum, connexivum, and the outer margins of the corium are sanguineous or rufous in fresh specimens. The last genital segment of the male is armed at the apex with an upwardly curved tooth; the third antennal joint is slender in both sexes. Twelve specimens have been seen from within our limits.

2. **Montina scutellaris.** (Tab. XVII. fig. 23, ♀.)

Montina scutellaris, Stål, Öfv. Vet.-Ak. Förh. 1859, p. 197 (♀) [1]; Enum. Hemipt. ii. p. 74 [2].

Hab. Costa Rica (*Mus. Berol.* [1]).

Differs from *M. nigripes* in having the outer margins of the connexival segments 2–5 less dilated, and not distinctly angulated before the apex. Our figure is taken from the type *.

ARILUS.

Arilus, Hahn, Wanz. Ins. i. p. 33 (1831).

Prionotus, Laporte, Essai Class. syst. Hémipt. in Guérin's Mag. Zool. 1832, p. 8; Stål, Ofv. Vet.-Ak. Förh. xvi. p. 196 (1859); Enum. Hemipt. ii. pp. 67, 72 †.

Prionidus, Uhler, Check-list Hemipt. Heteropt. N. Am. p. 23.

An American genus including several very closely allied species of large size, remarkable on account of the greatly developed and peculiarly formed posterior lobe of the pronotum, this latter being more or less cristate down the middle and set with a row of smooth shining black tubercles, and at the base there are two stout spines.

They prey upon small insects which live upon trees and bushes, and are able to inflict a very painful wound. The three species occurring within our limits may be separated thus:—

Posterior lobe of the pronotum convex and strongly cristate.
- Margins of the abdomen distinctly sinuate; the sides of the pronotum not or scarcely dilated behind the postero-lateral angles . . . . . *cristatus*, L.
- Margins of the abdomen not or very feebly sinuate; the sides of the pronotum distinctly dilated behind the postero-lateral angles . . . *gallus*, Stål.

Posterior lobe of the pronotum flattened and feebly cristate . . . . . *depressicollis*, Stål.

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* From a drawing made by Fr. H. v. Zglinicka.

† The name *Prionotus* was twice preoccupied in Zoology when used by Laporte.

1. **Arilus cristatus.**

Cimex cristatus, Linn. Cent. Ins. rar. p. 16 (1763)[1]; Amœn. Acad. vi. p. 399[2]; Syst. Nat. ed. 12, i. 2, p. 723[3]; Gmelin, Syst. Nat. i. 4, p. 2195[4] (nec Goeze, nec Amyot et Serv.).

Prionotus cristatus, Stål, Enum. Hemipt. ii. p. 72[5]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 327[6].

Prionidus cristatus, Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 283[7].

Reduvius novenarius, Say, Am. Ent. ii. t. 31. fig. 2 (1825)[8]; Descr. new sp. Heteropt. Hemipt. (New Harmony, Dec. 1831)[9]; Complete Writings, i. p. 71, t. 31. fig. 2[10].

Nabis novenarius, Say, Complete Writings, i. p. 358[11].

Arilus denticulatus, Westw. in Drury's Illustr. Exot. Ins. new edit. ii. p. 73 (1837)[12].

Prionotus patulus, Walk. Cat. Hemipt. Heteropt. viii. p. 76 (♀)[13].

Hab. North America[8–11], Atlantic region of New York[6], Pennsylvania[12], Maryland[6], Carolina[1–5], Texas[5 6], Lower California[7].—Mexico[5 6] (*Sallé*), Orizaba (*Bilimek, in Mus. Vind. Cæs.; H. H. Smith; Godman*); Guatemala (*Deby*[13]), El Jicaro in Vera Paz (*Champion*).

A common insect in the Southern and Eastern United States, extending southwards along the Atlantic slope to Guatemala. According to Prof. Uhler[6], it lives upon small pine-trees and preys upon caterpillars and other insects. Of the twelve specimens before me from Mexico and Guatemala, one only is of the male sex. *A. cristatus* differs from the S.-American and Antillean *A. carinatus*, Forst. (=*serratus*, Fabr., and *xanthopus*, Walk.), in having fewer tubercles on the crest of the pronotum (12–14 in *A. carinatus*, 8–10 in *A. cristatus*), and the margins not distinctly dilated behind the postero-lateral angles. The margins of the abdomen are sinuate in both sexes. Walker[13] states that the legs are wholly black in *P. patulus*, but in his type the posterior tibiæ are obscure ferruginous.

2. **Arilus gallus.** (Tab. XVII. figg. 24, 24 *a*, ♂.)

Prionotus gallus, Stål, Enum. Hemipt. ii. p. 72 (1872)[1].

Prionotus mundus, Walk. Cat. Hemipt. Heteropt. viii. p. 77 (1873)[2].

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).—Colombia, Bogota[1]; Venezuela[2].

Plentiful in forest-clearings on the slope of the Volcan de Chiriqui. This species is very like *A. cristatus*, but differs from it in having the sides of the pronotum distinctly dilated behind the projecting postero-lateral angles and the spines at the base shorter; the margins of the abdomen, too, are rounded and almost entire (instead of being distinctly sinuate, as in *A. cristatus*). The front of the head, the rostrum, antennæ, and tibiæ, and the apices of the anterior femora, are more or less ferruginous, and the intermediate and hind femora are sometimes obscurely ferruginous towards the base. The pronotal crest is furnished with 9–11 tubercles. About sixty specimens have been examined.

3. **Arilus depressicollis.** (Tab. XVII. figg. 25, 25 *a*, ♀.)

Prionotus depressicollis, Stål, Öfv. Vet.-Ak. Förh 1859, p. 196 (♀)[1]; Stett. ent. Zeit. 1862, p. 446[2]; Enum. Hemipt. ii. p. 72[3].

Hab. Mexico[2 3] (*Mus. Berol.*[1]), Mescala in Guerrero (*H. H. Smith*).

Of this species we have received a single specimen from Western Mexico; it is a female, like the type. *A. depressicollis* is closely allied to *A. cristatus*, but it has the posterior lobe of the pronotum feebly convex on the disc, with the crest very little raised and set with about eight tubercles, and the spines at the base are less divergent; the margins of the abdomen are feebly sinuate.

STHIENERA.

Sthienera, Spinola, Essai sur les Hémipt. p. 117 (1837); Stål, Öfv. Vet.-Ak. Förh. 1859, p. 196.
Piezopleura, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 362 (1843).
Harpactor, Stål, Hemipt. Afric. iii. p. 47; Enum. Hemipt. ii. pp. 68, 72 (nec Laporte).
Erbessus, Stål, Enum. Hemipt. ii. p. 73.

A Tropical-American genus including six described species, one of which has been recorded by Stål from Mexico. It differs from all the other Reduviids from our region in having the anterior tibiæ toothed near the apex beneath.

1. **Sthienera rhombea.** (Tab. XVII. fig. 26, ♀.)

Arilus (*Piezopleura*) *rhombeus*, Erichs. in Schomburgk's Reisen in Brit. Guiana, iii. p. 614[1].
Harpactor rhombeus, Stål, Enum. Hemipt. ii. p. 73[2].

Hab. Mexico (*Boucard, in Mus Holm.*[2]).—Guiana[1 2].

Dr. Aurivillius has lent me the Mexican specimen of this species in the Stockholm Museum, and from this our figure is taken.

ACHOLLA.

Acholla, Stål, Stett. ent. Zeit. 1862, p. 445, nota; Hemipt. Afr. iii. p. 47; Enum. Hemipt. ii. pp. 67, 72.
Ascra, Stål, Stett. ent. Zeit. 1862, p. 445.

An American genus including three very closely allied species, ranging from the United States to Guatemala. It differs from *Sinea* in having the anterior femora unarmed at the apex above.

The Central-American forms may be separated thus:—

Lateral angles of the pronotum obtuse; the ante-ocular portion of the head and the anterior lobe of the pronotum with prominent conical tubercles . . .	*ampliata*, Stål.
Lateral angles of the pronotum rather sharp; the ante-ocular portion of the head and the anterior lobe of the pronotum slightly tuberculate	*tabida*, Stål.

1. **Acholla ampliata.** (Tab. XVIII. figg. 1, 1 *a*, ♀ .)

Acholla ampliata, Stål, Enum. Hemipt. ii. p. 72 (♀) [1].

Hab. Mexico, Oaxaca (*Mus. Holm.* [1]).

This species is closely allied to the North-American *A. multispinosa* (De G.), but differs from that insect in having the head shorter, with the post-ocular portion more tumid anteriorly, and the pronotum broader, with the tubercles on the anterior lobe more raised. The type is figured.

2. **Acholla tabida.** (Tab. XVIII. figg. 2, 2 *a*, ♂ ; 3, ♀ .)

Ascra tabida, Stål, Stett. ent. Zeit. 1862, p. 446 (♀) [1].

Acholla tabida, Enum. Hemipt. ii. p. 72 [2] ; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 326 [3].

Hab. North America, California [3].—Mexico [1 2 3], Orizaba (*Bilimek, in Mus. Vind. Cæs. ; H. H. Smith ; Godman*) ; Guatemala, Capetillo (*Champion*).

We possess three specimens of this species, and I have seen four others belonging to the Vienna Museum, including the type. *A. tabida* also is very like *A. multispinosa* (De G.) (an example of which has been sent me by Prof. Uhler) ; but it has a less elongate head, and the spiniform elevations on the head and anterior lobe of the pronotum are not nearly so prominent. The males (unknown to Stål) have a narrow abdomen. We figure a pair from Orizaba.

SINDALA.

Sindala, Stål, Stett. ent. Zeit. 1861, p. 138 ; Hemipt. Afr. iii. p. 47 ; Enum. Hemipt. ii. pp. 67, 71.

This genus is closely allied to *Sinea*, but differs from it in the unarmed anterior tibiæ.

1. **Sindala brevis,** n. sp. (Tab. XVIII. figg. 4, 4 *a*, ♀ .)

♀. Very like *S. granuligera,* Stål, but much less elongate ; the antennæ shorter ; the head shorter than the pronotum, the latter not longer than broad and with acute, outwardly directed, lateral angles ; the head with shorter spines above and more numerous short spines beneath ; the abdomen more dilated beyond the middle, with the outer apical angles of the fourth and fifth segments somewhat rounded, those of the fourth being prominent ; the spines on the lower side of the anterior femora very much shorter, there being four only in the series at all prominent ; the legs much shorter and stouter.

Length $9\frac{1}{10}$, breadth $3\frac{1}{2}$ millim.

Hab. Panama, Bugaba (*Champion*).

One specimen. This insect is so like *S. granuligera*, Stål, from Colombia and Brazil (the type of the female * of which is before me), that the comparative differences mentioned above are sufficient for the purposes of identification.

* This specimen has the abdomen abnormally formed, the outer apical angle of the fourth connexival segment being produced into a stout dentiform process on the right side only.

SINEA.

Sinea, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 375 (1843) (part.); Stål, Stett. ent. Zeit. 1861, p. 137; Hemipt. Afr. iii. p. 47; Enum. Hemipt. ii. pp. 67, 70.

A well-marked American genus easily distinguishable by the strongly raptorial front legs, the anterior femora and tibiæ being each armed with a double series of long spines, and the anterior femora having also a long spine near the apex above. Its head-quarters are within our limits, whence seven species are now recorded. They are extremely closely allied and difficult to separate, unless specimens of both sexes are available for examination, several of them having a very differently shaped abdomen in the males. Of the six species described by Stål, four were based upon females only. Fortunately, we are now enabled to make good this deficiency and to characterize both sexes of all the Central-American forms. The three or four North-American species stand greatly in need of revision. It may be noted that in most of the *Sineæ* the form of the lateral angles of the pronotum is variable and the spines on the head vary in length.

The Central-American forms may be thus separated:—

a. Posterior lobe of the pronotum distinctly bigibbous on the disc; anterior lobe spinose or with pointed tubercles.
  a'. Abdomen narrow in the ♂, broad and with the margins undulated in the ♀: body moderately elongate . . . . . *undulata,* Uhler.
  b'. Abdomen in both sexes abruptly widened posteriorly, in the ♂ narrow to beyond the middle and caudate at the apex: body very elongate . *coronata,* Stål.
b. Posterior lobe of the pronotum simply transversely convex on the disc: body moderately elongate.
  c'. Abdomen narrow in the ♂, widened to the apex of the fourth segment in the ♀; head with the third spine of the ante-ocular series very elongate.
    a''. Abdomen subcaudate, and with the apex emarginate, in the ♂; anterior lobe of the pronotum with prominent pointed tubercles . *caudata,* n. sp.
    b''. Abdomen not caudate, and subtruncate at the apex, in the ♂; anterior lobe of the pronotum with very short conical tubercles . *raptoria,* Stål.
  d'. Abdomen in both sexes widening to the apex of the fourth segment, but narrower in the ♂ than in the ♀.
    c''. Anterior and posterior lobes of the pronotum spinose; head with the third spine of the ante-ocular series elongate . . . . . *integra,* Stål.
    d''. Anterior lobe of the pronotum tuberculate, the posterior lobe unarmed on the disc.
      a'''. Head with the third spine of the ante-ocular series very elongate, much longer than the others . . . . . *sanguisuga,* Stål.
      b'''. Head with the third spine of the ante-ocular series not longer than the others, the anterior one usually the longest . . . . *defecta,* Stål.

1. **Sinea undulata.** (Tab. XVIII. figg. 5, 5 *a*, ♀.)

Sinea multispinosa, Stål, Stett. ent. Zeit. 1862, p. 443 (nec De Geer) [1].
Sinea diadema (Fabr.), Stål, Enum. Hemipt. ii. p. 70 (part.) [2].
Sinea undulata, Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 282 [3].

Hab. North America, Southern and Lower California [3].—Mexico [1 2] (*Mus. Vind. Cæs.*), Acapulco, La Venta, Dos Arroyos, Chilpancingo, Venta de Peregrino, Tepetlapa, Amula, Cuernavaca, Atoyac, Vera Cruz, Teapa (*H. H. Smith*), Temax in N. Yucatan (*Gaumer*); Guatemala, Champerico, San Gerónimo, Zapote, Guatemala city (*Champion*); Costa Rica, Caché (*Rogers*).

Var. The spines on the head shorter, and those on the anterior lobe of the pronotum reduced to conical tubercles, the neck simply granulate. (♂ ♀.)

Hab. Mexico, Mazatlan and Presidio (*Forrer*).

Prof. Uhler has been kind enough to send me males and females of *S. diadema* (Fabr.) and *S. undulata*: the males I am unable to separate specifically; but the females differ in the amount of sinuation of the sides of the abdomen, *S. diadema* having the fourth and fifth segments strongly and subangularly dilated in this sex and *S. undulata* having the same segments almost arcuately dilated. The common Central-American representative of this group agrees with the latter in this respect, and I therefore adopt the name of *S. undulata* for it. Stål [1] noticed certain differences between the Mexican and North-American examples. The specimens before me (including a long series from Yucatan) vary greatly in size and colour, most of them being testaceous, and the pair of *S. undulata* from California are larger than any of those from within our limits. The present species is easily recognizable from all the other Central-American members of the genus, *S. coronata* excepted, by the distinctly bigibbous posterior lobe of the pronotum. About 100 examples have been examined, nine only of which belong to the variety, the latter being connected with the others by intermediate forms. The Mexican specimen in the Vienna Museum, from the Signoret collection, is labelled *S. integra*, Stål. A female from Yucatan is figured.

2. **Sinea coronata.** (Tab. XVIII. figg. 6, 6 *a*, ♂; 7, ♀.)

Sinea coronata, Stål, Stett. ent. Zeit. 1862, p. 444 (♀) [1]; Enum. Hemipt. ii. p. 71 [2].

Hab. Mexico [1] (*Mus. Vind. Cæs.*; *Mus. Holm.* [2]), San Lorenzo near Cordova (*M. Trujillo*), Teapa in Tabasco (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); Guatemala, San Gerónimo (*Champion*: ♂ ♀).

We possess one male and five females of this species. The abdomen of the male is narrow and subparallel to the apex of the fourth segment; the fifth and sixth segments are conjointly and angularly dilated, the sixth being produced posteriorly and truncate at the apex; the connexival margins are minutely denticulate; and the terminal genital segment has a broad, upwardly curved, spoon-shaped process at the tip. The abdomen of the female is broadly dilated beyond the middle, with the fifth segment

subparallel. The anterior tibiæ are armed on each side beneath with three very long spines, alternating with three short ones. *S. coronata* is more elongate than any of the other species of the genus known to me: it agrees with *S. diadema* (Fabr.) and *S. undulata*, Uhler, in having two distinct gibbosities on the posterior lobe of the pronotum, but differs from both in the shape of the abdomen. The head has a row of three spines on each side before the eyes, the posterior one being very elongate. Stål's type has been examined. A male from San Gerónimo and a female from Valladolid are figured.

3. **Sinea caudata,** n. sp. (Tab. XVIII. figg. 8, 8 *a*, ♂; 9, ♀.)

Moderately elongate, the abdomen narrow in the male, much broader in the female; sparsely pilose and pubescent, fuscous or griseo-fuscous, the connexival segments each more or less distinctly marked with flavous towards their outer apical angles; the body beneath, the intermediate and hind tibiæ, and the femora in part, testaceous or fusco-testaceous, the basal joint of the antennæ with a flavous ring. Head as long as the pronotum, armed on each side before the eyes with a row of three acute spines, the posterior one very elongate and the anterior one short, and with several spines near the ocelli and some scattered granules or conical tubercles on the neck. Pronotum with the two lobes about equal in length; the anterior lobe armed with numerous short, pointed, piligerous tubercles; the posterior lobe transversely convex, coarsely rugose, the lateral angles produced into an acute outwardly directed spine, the basal margin with a row of short piligerous spines. Abdomen (♂) narrow, slightly rounded at the sides, gradually narrowing from the apex of the fourth segment, and with the apex of the sixth produced into a short, broad, caudiform process, which is emarginate in the centre at the tip and has the outer apical angles rounded; (♀) broad, rapidly widening to the apex of the fourth segment and narrowing thence to the tip; the connexival margins finely denticulate in both sexes. Anterior femora with a very long spine near the apex above and with a row of four spines on each side beneath; anterior tibiæ with three long spines on each side within.

Length 8–10½; breadth, ♂ 1½–2½, ♀ 3½–3¾ millim. (♂ ♀.)

Hab. Panama, Bugaba, Volcan de Chiriqui, Caldera, Panama city (*Champion*).

Five males and six females are referred to this species. The males are very like those of *S. raptoria* (=*denticulosa*, Stål), but they may be readily distinguished by the subcaudate apex of the abdomen; the females can only be separated from the corresponding sex of that species by the more acute tubercles on the anterior lobe of the pronotum. In one of the males the outer apical angles of the fourth connexival segment are somewhat prominent.

4. **Sinea raptoria.** (Tab. XVIII. figg. 10, 10 *a*, ♂.)

Sinea raptoria, Stål, Stett. ent. Zeit. 1862, p. 444 (♀)[1]; Enum. Hemipt. ii. p. 71[2].
Sinea denticulosa, Stål, Enum. Hemipt. ii. p. 71 (♂ ♀)[3].

Hab. Mexico[1] (*Mus. Vind. Cæs.*; *Mus. Holm.*[2]), Teapa in Tabasco (*H. H. Smith*), Temax in N. Yucatan (*Gaumer*); Guatemala, San Gerónimo and Tocoy in Vera Paz (*Champion*); Panama, Volcan de Chiriqui (*Champion*).—Colombia, Bogota[3].

The types (♀) of *S. raptoria* and *S. denticulosa* are before me, and I am unable to separate them. The male of *S. raptoria* was unknown to Stål: it is very like that of

S. caudata, but the apex of the abdomen is subtruncate and not produced. In this sex the abdomen is long and narrow, subparallel to the apex of the fifth segment and narrowing thence to the apex, which is subtruncate. The females have the abdomen widened to the apex of the fourth segment and narrowed thence to the apex, the outer apical angles of the fourth segment being more or less prominent. The connexival margins are minutely denticulate in both sexes. The third spine of the double series on the ante-ocular portion of the head is very elongate. The females are only separable from those of *S. defecta* by this last-mentioned character; but the males of these two species are very different. The anterior lobe of the pronotum is set with very short subconical tubercles. In our numerous Mexican and Guatemalan specimens the spiniform lateral angles of the pronotum are directed a little backwards, while in the long series of both sexes from Chiriqui they are directed outwards, but this difference is not constant. A male from Teapa is figured.

5. **Sinea integra.** (Tab. XVIII. fig. 11, ♀.)

Sinea integra, Stål, Stett. ent. Zeit. 1862, p. 443 (♂ ♀)[1]; Enum. Hemipt. ii. p. 71[2].

Hab. Mexico (*Mus. Holm.*[1]), Presidio de Mazatlan, Milpas in Durango (*Forrer*), Rincon in Guerrero (*H. H. Smith*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Temax in N. Yucatan (*Gaumer*: ♂ ♀).

Stål appears to have confused two species under this name, as he gives[1] "the posterior lobe of the pronotum as unarmed or with scattered spinules on the disc": the specimen (♂) in the Signoret collection named by him belongs to *S. undulata*. The name *integra* is here retained for the insect with distinct spines on the disc of the posterior lobe of the pronotum. It is very like *S. undulata* and *S. diadema*, and has the head and anterior lobe of the pronotum similarly spinose; but the posterior lobe of the latter is not bigibbous on the disc, and the abdomen of the female is gradually widened to the apex of the fourth segment and narrowed thence to the apex (instead of being undulate at the sides as in *S. undulata*). The abdomen is rounded at the sides in both sexes, and, as usual, narrower in the male than in the female. Seven specimens only have been seen, including one of Stål's types (♂) belonging to the Stockholm Museum. A Yucatan example is figured.

6. **Sinea sanguisuga.** (Tab. XVIII. figg. 12, 12 *a*, ♂.)

Sinea sanguisuga, Stål, Stett. ent. Zeit. 1862, p. 444 (♀)[1]; Enum. Hemipt. ii. p. 71[2].

Hab. Mexico (*Mus. Holm.*[1 2]; *Mus. Vind. Cæs.*; *Sallé*), San Lorenzo near Cordova (*M. Trujillo*), Atoyac, Teapa (*H. H. Smith*); Guatemala, Cahabon, Chiacam, and Teleman in Vera Paz, San Isidro, Cerro Zunil, Volcan de Atitlan, Paso Antonio, Zapote (*Champion*).

Not uncommon in Mexico and Guatemala, whence we possess forty-five specimens. *S. sanguisuga* agrees with *S. defecta* in having the abdomen somewhat similarly

shaped in both sexes, but considerably narrower in the males than in the females: it is widened to the apex of the fourth segment and narrowed thence to the tip, the outer apical angles of the fourth segment, and those of the fifth also, in the males, being sometimes prominent or subdentiform. The connexival margins are crenulate or finely denticulate. I am unable to find any certain character by which to distinguish some of the females before me from those of *S. raptoria*. Stål's type (♀) has been seen. A male from Cerro Zunil is figured.

7. **Sinea defecta.** (Tab. XVIII. fig. 13, ♂.)

Sinea defecta, Stål, Stett. ent. Zeit. 1862, p. 445 (♀)[1]; Enum. Hemipt. ii. p. 71[2].

Hab. Mexico (*Mus. Holm.*[1 2]; *Mus. Vind. Cæs.*; *Sallé*), Pinos Altos in Chihuahua (*Buchan-Hepburn*), Milpas in Durango (*Forrer*), Venta de Zopilote, Chilpancingo, Xucumanatlan, Cuernavaca, Atoyac (*H. H. Smith*), Orizaba (*Bilimek*, *H. H. Smith*, *Godman*), Jalapa (*Godman*), Tlapacoyan (*Bilimek*, *in Mus. Vind. Cæs.*), Chiapas (*M. Trujillo*); Guatemala, El Tumbador, Las Mercedes, Volcan de Atitlan, Capetillo, Dueñas, Guatemala city, San Gerónimo, Sabo (*Champion*); Nicaragua, Chontales (*Janson*); Costa Rica, Irazu (*Rogers*); Panama, Volcan de Chiriqui, Tolé (*Champion*).

A common Central-American species, extending southwards to the State of Panama. Stål's first description appears to have been made from a single imperfect female example, with the long spine near the apex of the upperside of the anterior femora broken off. In some specimens (as in the type) the second and third spines of the series on each side of the ante-ocular portion of the head are reduced to small rounded tubercles, but in others they are as long as the anterior one. The anterior lobe of the pronotum is set with scattered rounded or short subconical tubercles; the posterior lobe is very coarsely rugose, without distinct gibbosities on the disc; the lateral angles are moderately acute. The abdomen is very similarly shaped in both sexes, somewhat rounded at the sides, but narrower in the male than in the female; it is gradually widened to the apex of the fourth segment and narrowed thence to the apex, the outer apical angles of the fourth segment being more or less prominent in the male; the connexival margins are feebly serrulate.

S. defecta is very like an insect from the Southern United States sent to me by Prof. Uhler as *S. spinipes* (Herr.-Schäff.), a species not identified by Stål; but in the latter the lateral angles of the pronotum are more acute and the spines on the head are longer *; *S. rileyi*, Mont., from California, must also be a nearly allied form. The comparatively short third spine or tubercle of the ante-ocular series will separate the present species from many of its allies.

Ninety specimens have been examined. An example from Cuernavaca is figured.

* These specimens, from Maryland and Florida, agree very well with Herrich-Schäffer's figure, though his species is stated to be from "South America."

Dr. Aurivillius has recently sent me for examination a very interesting Reduviid of the subfamily Acanthaspidinæ from Costa Rica, too late for insertion in its proper place, after the genus *Lamus*, anteà, p. 211. We therefore place it here, at the end of the Reduviidæ.

VOLESUS, n. gen.

Head short, small, with the antenniferous tubercles obliquely projecting in front, cylindrical, and unarmed; eyes rather small, transverse if viewed from the side; ocelli placed a little behind the usual transverse groove; antennæ inserted at the apex of the antenniferous tubercles, joint 1 rather stout, much longer than the head, 2 more slender and a little longer than 1, 3 and 4 very slender, 3 not half the length of 2 and twice as long as 4. Pronotum trapezoidal, the anterior lobe very short. Scutellum produced into a stout cylindrical process at the tip. Membrane with the outer area a little longer than the inner one. Abdomen broad, with wide connexival margins. Rostrum slender, joints 2 and 3 equal in length, received into a broad deep groove in the prosternum. Prosternum narrowly produced and declivous between the anterior coxæ, and armed with two blunt, compressed, dentiform processes in front, these extending forwards from the ridge bordering the rostral groove on each side posteriorly. Legs comparatively slender, each of the femora slightly compressed before the apex beneath; tarsi 3-jointed, claws simple. Body broad and robust.

This genus is almost intermediate between *Sphæridops* and *Veseris*: the antenniferous processes are unarmed, the second and third joints of the rostrum are subequal in length, and the first antennal joint is longer than the head, as in *Veseris*; but the prosternum is not obtusely rounded posteriorly as in that genus (following Stål's description), but narrowly produced as in *Sphæridops*. The head is very small.

1. **Volesus nigripennis,** n. sp. (Tab. XVIII. fig. 14, ♀.)

♀. Opaque above, slightly shining beneath, black; the pronotum sanguineous, with two anteriorly converging vittæ on the disc of the posterior lobe and two faint vittæ towards the sides, all connected in front, and the median portion of the anterior lobe, black; the scutellum bordered with sanguineous behind, the apical process ochraceous; the abdomen transversely banded with sanguineous, the sixth segment in great part red; the prosternum with a red streak on each side in front of the anterior coxæ; the legs blackish, the tarsi fusco-testaceous; the body beneath, the antennæ, and legs shortly pilose, the antennal joints 2–4 with longer, projecting hairs. Head, pronotum, and scutellum coarsely rugose; the pronotum narrowly sulcate down the middle of the posterior lobe, the lateral angles produced into a blunt tooth, the anterior lobe nodose at the sides behind, the anterior angles obtuse. The under surface densely, transversely rugulose, the venter smoother along the middle.

Length 19, breadth $8\frac{3}{4}$ millim.

Hab. Costa Rica (*Bovallius, in Mus. Holm.*).

One specimen.

Note.—In my enumeration of the species of *Apiomerus*, anteà, pp. 230–243, *A.* (*Herega*) *rufipennis*, Fallou, from Mexico (Le Nat. 1889, p. 131) was accidentally omitted. It is probably a variety of *A. crassipes* (Fabr.) or of *A. spissipes* (Say): the description is almost useless for the purposes of identification, colour only being noticed.

Fam. NABIDÆ.

APHELONOTUS.

Aphelonotus, Uhler, P. Z. S. 1894, p. 208.

This peculiar monotypic genus has very much the facies of a Reduviid, of the group Piratinæ. The anterior femora are enormously incrassate. The antennæ are 5-jointed, 1–3 moderately stout, 4 and 5 very slender, 3–5 subequal in length, 2 about twice as long as 1 and a little longer than 3. The rostrum is short and very stout, apparently 4-jointed. The elytra have a narrow linear clavus; the whole of the outer portion of the corium to the apex, exterior to the oblique median nervure, is regarded by Prof. Uhler as an embolium, but there is no cuneus; on the inner portion of the corium, a little beyond the apex of the scutellum, there is a triangular opaque space of a similar texture to the membrane; the membrane (not mentioned by Prof. Uhler) is moderately developed in the Antillean types, longer in the specimens from Guatemala.

1. **Aphelonotus simplus.** (Tab. XVIII. fig. 15.)

Aphelonotus simplus, Uhler, P. Z. S. 1894, p. 209[1].

Hab. Guatemala, Paraiso near Champerico and Paso Antonio (*Champion*).—Antilles, Grenada [1].

Two specimens, found under leaves &c., in marshy places, in the low country bordering the Pacific coast, in 1880. They are a little larger than the examples from Grenada described by Prof. Uhler, and have the membrane more developed, extending to a little beyond the apex of the abdomen; but these differences are not sufficient to warrant the separation of the mainland form.

PAGASA.

Pagasa, Stål, Rio Jan. Hemipt. ii. p. 60 (1862); Hemipt. Afr. iii. p. 38; Enum. Hemipt. iii. pp. 107, 108.

Stål separated the American forms allied to *Prostemma*, Lap., under a separate genus, *Pagasa*, chiefly on account of the longer rostrum and the presence of a collar to the pronotum in front; but it is doubtful if it can be maintained, one of his species being intermediate in these respects. The Palæarctic forms known to me have, however, a relatively shorter second joint to the rostrum, this reaching only to about the middle of the eyes, whereas in the American species it extends as far as or beyond the eyes. Our three representatives are very widely distributed and they may be separated thus :—

Pronotum as broad as long, with a shallow transverse curved groove in front; rostrum comparatively short, joint 3 slightly longer than 2; head pale; elytra opaque, a broad space along the costal margin excepted, the corium with a transverse plica towards the apex . . . . . *luteiceps*, Walk.

Pronotum longer than broad, with a straight transverse groove in front.

Rostrum comparatively short, joints 2 and 3 subequal in length; elytra entirely shining; anterior tibiæ angularly widened at the apex . . . . *fusca*, Stein.

Rostrum very elongate, joint 2 longer than 3; elytra with the clavus opaque; anterior tibiæ widened in their outer half . . . . . *pallipes*, Stål.

1. **Pagasa luteiceps.** (Tab. XVIII. figg. 16, 16 *a*, ♀.)

Prostemma luteiceps, Walk. Cat. Hemipt. Heteropt. vii. p. 135 [1].

♀. *Macropterous form.*—Moderately elongate, robust; clothed with scattered setæ, the abdomen, scutellum, corium, clavus, legs, and antennæ also sparsely pilose; the intermediate and hind tibiæ with a few very coarse long setæ on their outer edge; piceous, the head rufo-testaceous above, the anterior lobe of the pronotum nigro-æneous, with a triangular ochreous mark on the disc at the apex; the scutellum fusco-testaceous, darker in front, with a pale central line, the foveæ black; the clavus and corium fuscous, streaked with fusco-testaceous between the nervures, the corium broadly black at the apex and with two ochreous marks at about the middle of the apical margin; the membrane fuscous, black at the base, the nervures paler; the antennæ, rostrum, and legs fusco-testaceous; the surface shining, the scutellum and elytra opaque, a space along the outer part of the corium (extending from the base to the transverse plica) excepted. Head smooth, the eyes large and rounded, the ocelli prominent and comparatively large; rostrum stout, reaching to about the middle of the anterior coxæ, joint 3 slightly longer than 2, 2 extending only as far as the posterior margin of the eyes; antennæ with joints 1–3 moderately stout, 4 and 5 very slender, 2 one-half the length of 1, 3–5 long, subequal in length. Pronotum almost smooth, as broad as long, with a fine shallow curved transverse groove separating off the collar in front, the transverse sulcus before the base impunctate. Scutellum bifoveate on the disc. Elytra with three regular rows of punctures—two rows on the clavus and one on the inner basal half of the corium; the shining outer portion of the corium obsoletely rugulose, limited posteriorly by a distinct transverse plica; the membrane extending to a little beyond the apex of the abdomen. Anterior femora greatly incrassate, denticulate beneath. Anterior tibiæ strongly curved inwards, widening on the inner side to the apex and also denticulate within.

Length $6\frac{3}{4}$, breadth $2\frac{1}{2}$ millim.

Hab. Mexico, Atoyac in Vera Cruz (*H. H. Smith*).—South America [1], Tapajos [1].

One specimen. Very like *P. œnescens*, Stål, from Brazil, but differing from it in the spotted elytra, which have a much broader shining space at the sides, and the shorter and stouter rostrum (in *P. œnescens* the second joint is fully as long as the third). From *P. pallidiceps*, Stål, it may be known by the less elongate head, the much shorter rostrum, the broader shining space at the sides of the elytra, &c. The present species has a distinct transverse pallid plica towards the apex of the corium extending inwards from the costal margin, indicating the point of separation between the cuneus and embolium, as exhibited in the Anthocoridæ.

Stål's types of *P. œnescens* and *P. pallidiceps* have been seen.

2. **Pagasa fusca.** (Tab. XVIII. figg. 17, 17 *a*, ♀.)

Prostemma fuscum, Stein, Berl. ent. Zeitschr. 1857, p. 90 [1].

Pagasa nitida, Stål, Enum. Hemipt. iii. p. 108 (♀) [2].

Moderately elongate, clothed with long scattered setæ, the abdomen, legs, and antennæ also sparsely pilose; very shining, nigro-æneous, the scutellum black and opaque, the legs, antennæ, and rostrum varying in colour from nigro-piceous to testaceous. Head smooth, the eyes large, oval as seen from above, the ocelli very small; rostrum reaching the anterior coxæ, joints 2 and 3 subequal in length, 2 extending as far as the posterior margin of the eyes; antennæ with joint 2 about half the length of 1, 3–5 subequal in length, 3 a little thickened towards the apex. Pronotum smooth, longer than broad, with a fine straight transverse groove separating off the collar in front, the transverse sulcus before the base with a row of punctures. Scutellum with two small foveæ on the disc. Abdomen transversely strigose, the basal segments punctured. Elytra irregularly obsoletely punctate and with rows of more distinct punctures along the sides of the prominent nervures. Anterior femora greatly incrassate, denticulate beneath. Anterior tibiæ in both sexes broadly and angularly dilated at the apex within.

Macropterous form.—Corium extending to beyond the middle of the abdomen; the membrane reaching the apex of the latter.

Brachypterous form.—Corium not reaching the middle of the abdomen, sinuate on the outer side towards the apex; the membrane reduced to a narrow stripe or entirely absent.

Length $4\frac{4}{5}$–nearly 7, breadth $1\frac{1}{4}$–$2\frac{1}{8}$ millim. (♂ ♀.)

Hab. North America, Pennsylvania [1], Wisconsin [2].—Mexico, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Xucumanatlan, Amula, and Chilpancingo in Guerrero (*H. H. Smith*); Guatemala, Quiché Mountains, Totonicapam, Quezaltenango, Dueñas, Capetillo (*Champion*); Panama, Peña Blanca (*Champion*).

Eleven specimens, three of which are macropterous. The above description is taken from the Central-American examples: they do not quite accord with the colour given by Stein, and Stål's diagnosis of *P. nitida* is very brief*. Those from the Los Altos region of Guatemala (7000–10,500 feet) have the legs, antennæ, and rostrum more or less infuscate. Berg (Hemipt. Argent., Suppl. p. 105) has recorded *P. nitida* from Buenos Ayres. Stål's type has been examined. In the Stockholm Museum there is a larva of a *Pagasa* from Mexico (*Sallé*) possibly belonging here; but it has the anterior tibiæ widened from a little beyond the middle to the apex.

3. **Pagasa pallipes.** (Tab. XVIII. figg. 18, 18 *a*, ♂.)

Pagasa pallipes, Stål, Enum. Hemipt. iii. p. 108 (forma macropt.) (♀) [1]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 325 [2].

♂. *Brachypterous form.*—Moderately elongate, very sparsely setose, the abdomen, legs, and antennæ also sparsely pilose; nigro-piceous, the head reddish in front, the pronotum with an æneous lustre; shining, the scutellum and clavus opaque; the legs and rostrum testaceous, the posterior femora darker at the apex. Antennæ as in *P. fusca*, but with joints 3–5 more elongate. Rostrum very long, reaching the intermediate coxæ; joint 2 a little longer than 3, extending as far as the front of the anterior coxæ. Eyes large. Pronotum as in *P. fusca*. Corium extending slightly beyond the first abdominal suture, rounded at the apex, the membrane reduced to a narrow strip along its inner apical margin. Anterior tibiæ broadly and abruptly widened on the inner side from about the middle to the apex.

Length $6\frac{1}{5}$, breadth $2\frac{1}{4}$ millim.

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* Reuter (Rev. d'Ent. ix. p. 291) suggests that *P. fusca*, Stein, and *P. nitida*, Stål, are probably conspecific.

Hab. North America, Kansas [2], Texas [1 2].—Panama, Caldera in Chiriqui (*Champion*).

One specimen. Very like *P. fusca*, but with the elytra less shining, the rostrum very elongate, the eyes larger and more coarsely faceted, the anterior femora differently formed. Stål's type (♀) of the macropterous form has been seen.

ALLŒORHYNCHUS.

Allœorhynchus, Fieber, Europ. Hemipt. pp. 43, 159 (1861); Stål, Hemipt. Afr. iii. p. 40; Enum. Hemipt. iii. pp. 107, 109.

A very widely distributed genus, two of the three described American species occurring within our limits. In these insects, as in the Palæarctic *A. flavipes*, Fieb., the anterior femora are strongly incrassate and angularly dilated on the lower side a little before the middle, with the lower margin finely denticulate thence to the apex, the intermediate pair being similarly formed, but more slender; the anterior tibiæ are also abruptly dilated on the inner side at the apex, with a spongy fossa extending along the widened portion.

1. **Allœorhynchus vittativentris.** (Tab. XVIII. fig. 19, ♀.)

Allœorhynchus vittativentris, Stål, Enum. Hemipt. iii. p. 109 (♀) (1873).

Hab. Panama, Volcan de Chiriqui 3000 feet (*Champion*).—Colombia, Bogota [1].

One female example, agreeing with Stål's type now before me *.

A. armatus, Uhler, from the Island of Grenada, is a very closely allied form, but differs in having the anterior tibiæ widened for a shorter distance at the apex, and the elytra partly flavous.

2. **Allœorhynchus trimacula.** (Tab. XVIII. fig. 20.)

Prostemma trimacula, Stein, Berl. ent. Zeitschr. 1860, p. 76 [1].

Allœorhynchus trimacula, Stål, Enum. Hemipt. iii. p. 109 [2].

Hab. Mexico, Oaxaca [2] (*Deppe, in Mus. Berol.* [1]); Guatemala, Cahabon, Panima, San Gerónimo, Las Mercedes, Zapote (*Champion*); Panama, Bugaba, Volcan de Chiriqui (*Champion*).

We possess eleven specimens of this species, which is easily distinguishable by the trimaculate posterior lobe of the pronotum. An example from Bugaba is figured.

PHORTICUS.

Phorticus, Stål, Rio Jan. Hemipt. i. p. 69 (1860); Enum. Hemipt. iii. pp. 107, 109.

Like *Allœorhynchus*, a widely distributed genus. Of the eight described species, two are American, one of them being now known to inhabit Eastern Mexico. In this

* The scutellum in this specimen is injured by the pin and appears to be shining, instead of opaque, as in the Chiriqui example.

insect the anterior femora are strongly incrassate and have a sharp tooth at the middle beneath, and the anterior tibiæ are greatly widened on the inner side towards the apex, with a short tooth before the tip; the intermediate femora are simple.

1. **Phorticus collaris.** (Tab. XVIII. fig. 21, ♂.)

Phorticus collaris, Stål, Enum. Hemipt. iii. p. 109 (♂ ♀)[1].

Hab. North America, Texas [1].—Mexico, Teapa (*H. H. Smith*).

One male, sent by Mr. H. H. Smith. One of Stål's types from Texas has been seen.

NABIS.

Nabis, Sect. I., Latreille, Gen. Crust. et Ins. iii. p. 127 (1807); Fieber, Europ. Hemipt. pp. 43, 159; Stål, Hemipt. Afr. iii. p. 41; Reuter, Öfv. Vet.-Ak. Förh. 1872, no. 6, p. 80; Rev. d'Ent. ix. p. 293.

Coriscus (Schrank), Stål, Enum. Hemipt. iii. pp. 111, 112.

Some authors, including Stål, adopt the name *Coriscus*, Schrank [Fauna Boica, i. 2, p. 46 (1801)], for this well-known genus; but as Schrank subsequently gives (*op. cit.* p. 99) *C. dauci* (=*Alydus calcaratus*, Linn.) as the type, it cannot be used. Various subgenera of *Nabis* have been proposed by Reuter and others, two only of these being represented within our limits. In this genus all the tarsi are 3-jointed, the anterior and intermediate tibiæ have a lobe at the apex *, and the rostrum and antennæ are 4-jointed. Seven species are now known from within our limits, one of them being the holarctic *N. ferus* (Linn.)†. The undeveloped or brachypterous forms cannot always be satisfactorily determined in the absence of developed examples; and in at least two of the Central-American species the elytra vary in length in these forms.

a. Anterior and intermediate femora beneath, and the tibiæ within, finely denticulate. [Hoplistoscelis, Reut.]
  a'. Legs with scattered long, fine, soft hairs.
    a''. Posterior lobe of pronotum almost smooth.
      a'''. Body rather short, comparatively broad; legs moderately long; abdomen not vittate above, infuscate beneath.
        a^4. Anterior femora strongly incrassate: form robust . . . . . *crassipes,* Reut
        b^4. Anterior femora moderately incrassate: form more slender . . *nigriventris,* Stål.
      b'''. Body moderately elongate, narrow; legs longer; abdomen vittate above; anterior femora moderately incrassate . . . . . *sordidus,* Reut.
    b''. Posterior lobe of the pronotum rugose; elytra constricted below the base: form slender . . . . . *constrictus,* n. sp.

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* Not noticed by Reuter.

† The types of *N. crassipes, N. sericans, N. sordidus, N. pallescens, N. rufusculus, N. punctipes, N. vicarius,* and *N. roseipennis*, Reut., have been lent me by Dr. Aurivillius for examination.

b'. Legs with scattered rigid hairs and setæ; posterior lobe of the pronotum closely, finely punctate: form slender . . . . . *signatus*, Uhler.

b. Intermediate femora beneath, and the anterior and intermediate tibiæ within, very finely denticulate. [NABIS, sensu strict.] . . . . . *ferus*, Linn.

1. **Nabis crassipes.** (Tab. XVIII. figg. 22, ♀; 23, genital clasper, ♂; 24, var., ♂.)

Nabis crassipes, Reut. Öfv. Vet.-Ak. Förh. 1872, no. 6, p. 83 (♀) (forma brachypt.) [1].
Nabis (*Hoplistoscelis*) *crassipes*, Reut. Rev. d'Ent. ix. p. 297 (♀) (formæ macropt. et brachypt.) [2].

Hab. MEXICO (*Sallé* [1], *in Mus. Holm.* [2]), Chilpancingo, Xucumanatlan, and Omilteme in Guerrero, Cuernavaca in Morelos (*H. H. Smith*).

Eight macropterous females and one undeveloped male are referred to this species, described from females only. In the undeveloped specimen from Cuernavaca the elytra reach the base of the sixth abdominal segment (in the undeveloped type they are stated to extend to a little beyond the middle of the abdomen), and the membrane is nearly as long as the clavus. The scutellum has a small pallid spot on each side, not mentioned by Reuter. The outer apical angles of the sixth connexival segment are rectangular in the male.

A brachypterous male (fig. 24) and female have also been received from Omilteme (with developed forms) with the elytra barely twice the length of the scutellum and conjointly truncate at the apex: there can scarcely be any doubt that they belong to the same species, and that the elytra vary in development in this insect, as well as in *N. nigriventris*.

The macropterous type (♀) in the Stockholm Museum has been examined.

2. **Nabis nigriventris.** (Tab. XVIII. figg. 25, ♂; 25 *a*, genital clasper, ♂.)

Nabis nigriventris, Stål, Stett. ent. Zeit. 1862, p. 458 (forma brachypt., ♀) [1].
Coriscus nigriventris, Stål, Enum. Hemipt. iii. p. 114 [2].
Nabis sericans, Reut. Öfv. Vet.-Ak. Förh. 1872, no. 6, p. 83 (formæ macropt. et brachypt.) (♂ ♀), t. 8. fig. 3 (genital clasper, ♂) [3].
Nabis (*Hoplistoscelis*) *sericans*, Reut. Rev. d'Ent. ix. p. 296 [4].
Coriscus roripes, Uhler, P. Z. S. 1893, p. 706 (forma brachypt.) (nec Stål) [5].

Hab. NORTH AMERICA, Texas [3 4].—MEXICO, Omilteme, Chilpancingo, Xucumanatlan, Amula, and Tepetlapa in Guerrero, Cuernavaca, Mexico city (*H. H. Smith*), Orizaba (*Bilimek, in Mus. Vind. Cæs.* [4]; *H. H. Smith*, *Godman*), Tacubaya (*Bilimek, in Mus. Vind. Cæs.* [4]); GUATEMALA, Quezaltenango, Cerro Zunil, Capetillo, Guatemala city (*Champion*).—ANTILLES, St. Vincent [5].

A common species in Mexico and Guatemala. Very like *N. crassipes*, but smaller, narrower, and less robust, the anterior femora less incrassate. Of the fifty-one

specimens in our collection, two only (♀) are brachypterous; they measure from 6–7 millim. in length. The types of *N. nigriventris*, Stål, and *N. sericans*, Reut., both brachypterous females, are before me: Stål's specimen, which is discoloured, has the elytra short, rounded at the apex, with a narrow membrane, and the ventral and dorsal surfaces of the abdomen nigro-piceous; that of Reuter has the elytra still shorter, rounded behind, and without trace of membrane, and the abdomen paler.

The two brachypterous specimens received by us (from Omilteme and Capetillo respectively) merely differ from Stål's type in having slightly longer elytra. A developed male from Cuernavaca is figured.

3. **Nabis sordidus.** (Tab. XVIII. figg. 26, 27, ♂; 27 *a*, genital clasper, ♂; 28, ♀.)

Nabis sordidus, Reut. Öfv. Vet.-Ak. Förh. 1872, no. 6, p. 85 (forma brachypt., ♀)[1].
Nabis (*Hoplistoscelis*) *sordidus*, Reut. Rev. d'Ent. xi. p. 299 (formæ macropt. et brachypt.) (♂ ♀)[2].
Coriscus crassipes, Uhler, P. Z. S. 1894, p. 205 (forma macropt.) (nec Reut.)[3].
Coriscus sericans, Uhler, loc. cit. p. 205 (forma brachypt.) (nec Reut.)[4].

Hab. Mexico, Chilpancingo in Guerrero, Cuernavaca (*H. H. Smith*), Vera Cruz (*Sallé, in Mus. Holm.*[1 2]; *H. H. Smith*), Atoyac, Teapa (*H. H. Smith*), San Marcos, Orizaba (*Bilimek, in Mus. Vind. Cæs.*[2]); Guatemala, Cahabon and San Gerónimo in Vera Paz, Capetillo (*Champion*); Costa Rica, Volcan de Irazu (*Rogers*); Panama, Volcan de Chiriqui (*Champion*).—Antilles, Grenada[3 4].

We possess a long series of this species, including four brachypterous examples (three males and one female); from Vera Cruz both brachypterous and macropterous specimens have been sent by Mr. H. H. Smith. *N. sordidus* is very like *N. nigriventris*, but it is more elongate, the head is relatively longer and the legs also, the abdomen is broadly pale down the middle beneath and has two pale vittæ along the centre above, the corium has a whitish node on one of the nervures towards the apex, &c. The black or fuscous spots along the connexival margins are sometimes indistinct or obsolete in immature examples. The insect varies a good deal in size, the brachypterous specimens being smaller than the others. The brachypterous type from Vera Cruz has been examined, and we have one exactly like it from Atoyac. The brachypterous males from Teapa and Vera Cruz are not separable from the North-American type (♀) of *N. pallescens*, Reut., which appears to be nothing more than a pallid form of the present species. We figure a developed male and an undeveloped male and female, all from the State of Vera Cruz.

4. **Nabis constrictus,** n. sp. (Tab. XVIII. figg. 29, ♀; 30, apex of the abdomen from above, showing the genital claspers, ♂.)

Macropterous form.—Moderately elongate, narrow, subopaque, sparsely pilose, the legs also with very long fine projecting hairs; stramineous or testaceous, the pronotum with the sides of the anterior lobe, a spot at the lateral angles, and three lines on the disc of the posterior lobe, the elytra with the clavus in part, a common transverse fascia about the middle, sometimes so extended as to leave only a space at the sides

of the corium below the base pale, and the nervures of the membrane in part, fuscous or dilute fuscous; the corium in fresh specimens with two posteriorly confluent crimson streaks at the apex, the nervures usually pale; the pleura, a row of spots along the sides of the connexivum, a narrow vitta down each side of the venter, the apex of the second antennal joint, the apices of all the tibiæ, and a narrow annulus before the apices of the hind femora, black or fuscous, the tibiæ usually with at least one darker ring near the base and the anterior and intermediate femora with a similar ring near the apex. Head shorter than the pronotum, the eyes small, prominent, and coarsely faceted; antennæ very slender, as long as the body, joints 2–4 nearly equal in length, 1 shorter than 2 and about as long as the head. Pronotum about as broad as long, the posterior lobe and the collar rugosely punctate, the basal portion of the anterior lobe almost smooth. Elytra constricted at the sides below the base, extending some distance beyond the abdomen, and in the male almost covering it externally. Abdomen rounded at the sides in the female, more parallel-sided in the male, the connexivum moderately wide. Anterior and intermediate legs with the femora beneath, and the tibiæ within, finely denticulate.

Length $6\frac{1}{2}$–8, breadth $1\frac{1}{2}$–$2\frac{1}{8}$ millim. (♂ ♀.)

Hab. MEXICO, Atoyac and Teapa (*H. H. Smith*); GUATEMALA, Balheu in Vera Paz, Las Mercedes, Cerro Zunil, San Isidro, Zapote (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Numerous examples, all macropterous. Easily distinguishable from the other Central-American species by the rugose posterior lobe of the pronotum and the laterally constricted elytra. The coloration of the elytra is somewhat variable and difficult to describe, and it is only in fresh examples that the crimson streaks are visible at the apex of the corium. The long scattered hairs on the legs are very fine. The membrane usually has a patch behind the apex of the corium and the tip pale. A Chiriqui specimen is figured.

5. **Nabis signatus.** (Tab. XVIII. figg. 31, 32, ♀; 33, genital clasper, ♂.)

Coriscus capsiformis, Uhler, P. Z. S. 1893, p. 706 (nec De Geer)[1].

Coriscus signatus, Uhler, P. Z. S. 1894, p. 205 (macropt. form)[2].

Hab. PANAMA, Bugaba (*Champion*).—ANTILLES, Grenada[2], St. Vincent[1].

Brachypterous form.—Elytra very short, barely twice the length of the scutellum, the apices rounded and divaricate. (♂ ♀.) (Fig. 32.)

Hab. MEXICO, Teapa (*H. H. Smith*).

A small narrow species, flavo-testaceous in colour, with the pronotum, scutellum, clavus, corium, and membrane streaked with fuscous or brownish; the apex of the second antennal joint and the apices of the tibiæ blackish, the rest of the legs speckled and annulated with fuscous, the femora and tibiæ with scattered strong setæ arising from the fuscous dots; the pronotum with the posterior lobe and the collar closely, finely punctate. In the brachypterous form the elytra and the upper surface of the abdomen are streaked with fuscous or blackish. The abdomen is closely pubescent, above and beneath. Six macropterous specimens were found at Bugaba and a pair of brachypterous ones at Teapa. The latter agree perfectly with the others in their general structure. *N. signatus* belongs to the subgenus *Hoplistoscelis*, Reut.

6. **Nabis ferus.**

Cimex ferus, Linn. Syst. Nat. ed. 10, i. p. 449; Fauna Suecica, p. 256[1].
Nabis ferus, Fieb. Europ. Hemipt. p. 161[2]; Reuter, Öfv. Vet.-Ak. Förh. 1872, no. 6, p. 90[3].
Coriscus ferus, Stål, Enum. Hemipt. iii. p. 113[4]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 325[5]; Proc. Calif. Acad. Sci. (2) iv. p. 282[6].
Nabis punctatus, Costa, Cimicum Regni Neap. ii. p. 14 (1843)[7] *.

Hab. NORTH AMERICA[3 4], generally distributed throughout the United States[5 6], Lower California[6].—MEXICO (*Sallé, in Mus. Holm.*), Ciudad in Durango (*Forrer*), Omilteme in Guerrero (*H. H. Smith*), Orizaba (*H. H. Smith, Godman*); GUATEMALA, Quezaltenango (*Champion*).—EUROPE[1–4 7].

We possess twelve examples of this species from within our limits, these belonging to the var. *punctatus*, Costa. In this form the clavus and corium are minutely dotted with fuscous. *N. punctipes*, Reut.† (?=*N. roseipennis*, Reut.), from Wisconsin (the types of which I have seen), is very like the Mexican and Guatemalan specimens, but it has the legs and elytra more thickly speckled with fuscous.

CARTHASIS, n. gen.

Head with the ante-ocular portion cylindrical and longer than the post-ocular portion, transversely grooved between the eyes, without ocelli, the eyes rounded, prominent, and coarsely faceted; rostrum reaching nearly as far as the base of the pronotum, 4-jointed, joints 2–4 slender, 2 as long as 3 and 4 united; antennæ inserted at the apex of the short oblique cylindrical antenniferous tubercles, 4-jointed, elongate, slender, joints 1 and 2 stouter than the others, 1 and 2 subequal in length, 3 a little shorter than 2, 4 one-half longer than 3. Pronotum longer than broad, strongly constricted about the middle; the posterior lobe transversely convex; the anterior lobe longer and narrower than posterior one, with the inferior lateral portions obliquely widening forwards to the points of insertion of the anterior legs, and shallowly transversely grooved in front. Scutellum triangular, moderately large. Elytra extending to the apex of the abdomen and almost covering it, constricted below the base, with a narrow clavus, the corium reaching to a little beyond the middle of the membrane and with a sinuous median nervure, the membrane without distinct nervures. Abdomen (♀) ovate, with a very narrow connexivum. Legs slender, the anterior pair raptorial and inserted near the apex of the propleura; anterior coxæ elongate, about half the length of the tibiæ; anterior femora feebly incrassate, denticulate beneath; all the tibiæ with a spongy lobe at the apex, extending to about the middle of the very slender tarsi, which are formed of one joint only; claws simple; anterior tibiæ denticulate within. Body narrow, slender.

This genus is allied to *Nabis*, but differs from it in the form of the pronotum, the absence of ocelli, the relatively longer anterior coxæ, the structure of the tarsi, &c. In the long anterior coxæ and the position of the anterior legs it approaches the subfamilies Emesinæ and Bactrodinæ of the Reduviidæ. The tarsi are uni-articulate, and at the apex of each of the tibiæ there is a spongy lobe.

* For the rest of the synonymy see Lethierry and Severin's Catalogue.

† *N. punctipes* is not mentioned by Reuter in his later work, nor included in Lethierry and Severin's Catalogue.

1. **Carthasis rufonotatus,** n. sp. (Tab. XIX. figg. 4, 4 *a*, ♀.)

♀. Moderately elongate, dull, almost smooth, finely pubescent and also sparsely pilose; testaceous or flavo-testaceous, the pleura, clavus, and scutellum, and a transverse fascia on the posterior lobe of the pronotum, darker; the corium flavous, with two crimson spots—one at the apex and one adjoining the base of the membrane, the latter sometimes obsolete,—and a fuscous patch before the middle; the eyes, two vittæ behind them, and the tip of the scutellum red in some specimens; the membrane fuscous, with the apex and a spot adjoining the apex of the corium flavescent. Pronotum slightly wider in front than the head (with the eyes), the posterior lobe rounded at the sides and feebly emarginate at the base. Anterior femora with several long setæ, in addition to the very fine teeth, along the lower edge.
Length 4–4$\frac{1}{4}$, breadth $\frac{7}{8}$–1 millim.

Hab. PANAMA, Bugaba, Caldera, David, Tolé (*Champion*).

Five specimens of this delicate insect have been found; three of them are somewhat immature.

Fam. ANTHOCORIDÆ.

In Dr. Reuter's comprehensive and masterly monograph of this family (1884) nine species only are mentioned from within our limits, and these from Mexico. It is therefore not surprising that many of the Central-American forms are new, both as regards genera and species. Unfortunately several of them are represented by single (carded) examples only, and I have not always been able to make out satisfactorily the neuration of the wings and the form of the orifice of the odoriferous sac, the main characters relied upon by Dr. Reuter in his system of classification. Since the publication of the 'Monograph,' Prof. Uhler has given a list of the numerous species obtained by Mr. H. H. Smith in the Antillean islands of St. Vincent and Grenada (P. Z. S. 1894, pp. 156, 157, 198–202); several of these also inhabit our region, whence upwards of fifty are here recorded. Of the three subfamilies adopted by Dr. Reuter, one only, the Anthocorinæ, is represented in Central America. All our specimens are macropterous.

Subfam. *ANTHOCORINÆ.*

Division **LYCTOCORARIA,** Reuter.

The species of this section of the Anthocorinæ have the third and fourth antennal joints much more slender than the preceding joints, and clothed with long projecting hairs. Dr. Reuter includes in it only the forms with a hamus in the cell of the wings; but one of the new genera here characterized without a hamus in the cell is so nearly allied to *Lasiochilus* in other respects that it seems best placed here.

LYCTOCORIS.

Lyctocoris, Hahn, Wanz. Ins. iii. p. 19 (1835); Reuter, Monogr. Anthocorid. pp. 5, 6.
Dolichomerus, Reuter, Öfv. Vet.-Ak. Förh. 1871, p. 557.

This genus includes five species—one cosmopolitan, the others American.

1. Lyctocoris campestris.

Acanthia campestris, Fabr. Ent. Syst. iv. p. 75 [1].
Lyctocoris campestris, Reut. Öfv. Vet.-Ak. Förh. 1871, p. 409 [2]; Monogr. Anthocorid. p. 7 [3].
Lyctocoris fitchii, Reut. Öfv. Vet.-Ak. Förh. 1871, p. 557 [4]; Stål, Enum. Hemipt. iii. p. 101 [5].

Hab. North America, New York [4 5] to Texas [3].—Mexico, Chiapas (*Richardson*).—Europe [3]; Asia Minor [3]; New Zealand [3] &c.

A specimen of this insect has been found by us amongst a collection of bird-skins received from Chiapas. For the rest of the synonymy, see Dr. Reuter's Monograph.

LASIOCHILUS.

Lasiochilus, Reuter, Öfv. Vet.-Ak. Förh. 1871, p. 562; Monogr. Anthocorid. pp. 5, 13; Stål, Enum. Hemipt. iii. p. 102.
Dilasia, Reuter, Öfv. Vet.-Ak. Förh. 1871, p. 563.
Hapa, Buchanan White, P. Z. S. 1878, p. 465.
Subgen. *Semiotoscelis*, Reuter, Monogr. Anthocorid. pp. 15, 24.

Of the sixteen described species of this widely-distributed genus *, ten are American. All but one of the Central-American forms appear to be new.

Its chief characters are the short, backwardly-curved orifice of the metastethium and the strongly pilose elytra, the outer margins of the embolium appearing ciliate.

a. Pronotum with a median fovea or short longitudinal sulcus on the anterior lobe behind.
  a'. Antennæ with joints 1 and 2 moderately thickened.
    a''. Pronotum much narrowed anteriorly, more than twice as wide at the base as at the apex; elytra closely punctured . . . . . *punctipennis*, n. sp.
    b''. Pronotum moderately narrowed anteriorly, not twice as wide at the base as at the apex.
      a'''. Elytra closely and finely punctured, fuscous . . . . . *microps*, n. sp.
      b'''. Elytra sparsely and finely punctured, maculate . . . . . *reuteri*, n. sp.
      c'''. Elytra with the clavus coarsely and closely, and the other parts finely and very sparsely, punctured, testaceous . . . . . *pallidulus*, Reut.
  b'. Antennæ with joints 1 and 2 stout; pronotal fovea deep; elytra with the clavus coarsely, and the other parts more finely, punctured, fuscous, with the shoulders pale . . . . . *foveicollis*, n. sp.
b. Pronotum with the anterior lobe sulcate down the middle from the ante-apical groove to the base; elytra with the clavus coarsely, and the other parts more finely, punctured, testaceous.
  c'. Pronotum moderately narrowed anteriorly, nearly twice as wide at the base as at the apex: body ovate . . . . . *sulcatus*, n. sp.
  d'. Pronotum broad in front, about one-third wider at the base than at the apex, the sulcus very deep: body elongate . . . . . *divisus*, n. sp.

* *L. nebulosus* and *L. pictus*, Uhler, belong to *Asthenidea*.

1. **Lasiochilus punctipennis,** n. sp. (Tab. XIX. figg. 1, 1 *a*.)

Oblong-ovate, somewhat thickly pilose and also clothed with long, scattered, erect hairs, the margins of the embolium ciliate; shining, the depressed portion of the scutellum and the elytra opaque or subopaque; piceous, the elytra fuscous, with the sides ochreous at the base, the apical two joints of the antennæ, as well as the second joint in part, the rostrum, legs, and venter ochreous. Head (with the eyes) about as broad as long, smooth, the eyes small; rostrum nearly reaching the intermediate coxæ; antennæ with joints 1 and 2 moderately stout, 3 and 4 very slender, 2 about three times as long as 1, and longer than 3 or 4, the latter subequal in length. Pronotum more than twice as wide at the base as at the apex, narrower in front than the head (with the eyes), the sides almost straight; the anterior lobe smooth, with a short longitudinal median sulcus behind; the posterior lobe depressed on the disc and transversely rugulose. Scutellum, except in front, transversely rugose. Elytra with the clavus, corium, embolium, and cuneus closely, distinctly, uniformly punctate; the embolium at the apex as wide as the corium; the membrane with a single (outer) nervure only distinct. Orifice of the metastethium short, curving backwards.

Length $2\frac{1}{2}$–$2\frac{3}{4}$ millim. (♂ ♀.)

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Five specimens. This species is not unlike the North-American *L. fusculus*, Reut.; but the pronotum is more narrowed in front, the elytra are closely, distinctly punctate (the puncturing being very sparse and fine in *L. fusculus*), &c.

2. **Lasiochilus microps,** n. sp.

Oblong-ovate, somewhat thickly pilose, and also clothed with long, scattered, erect hairs, the margins of the embolium ciliate; shining, the depressed portion of the scutellum and the elytra subopaque; piceous, the head, pronotum, and venter rufo-testaceous, the eyes black; the elytra fuscous, with the sides at the base and the transverse plica ochreous; the third and fourth joints of the antennæ, the rostrum, and legs ochreous. Head about as long as broad, smooth, the eyes very small; rostrum reaching the intermediate coxæ; antennæ with joint 2 about two and one-half times the length of 1. Pronotum not twice as wide at the base as at the apex, as wide in front as the head (with the eyes); the anterior lobe with a short longitudinal median sulcus behind; the posterior lobe flattened on the disc and transversely rugulose. Scutellum, except in front, transversely rugose. Elytra with the clavus, corium, embolium, and cuneus closely, distinctly, uniformly punctate; the embolium at the apex as wide as the corium; the membrane with a single (outer) nervure only distinct. Orifice of the metastethium short, curving backwards.

Length $2\frac{1}{2}$ millim. (♀.)

Hab. GUATEMALA, Cerro Zunil 4000 feet (*Champion*).

One specimen. Very like *L. punctipennis*, but with the eyes smaller, the pronotum less narrowed in front, the head and pronotum rufo-testaceous. This and the preceding species differ from the Venezuelan *L. unicolor*, Reut. (the type of which is before me), in their more ovate shape, and in having the elytra duller, more distinctly punctured, and with the embolium much broader behind.

3. **Lasiochilus reuteri,** n. sp. (Tab. XIX. fig. 2.)

Oblong-ovate, sparsely pilose and also clothed with long, scattered, erect hairs, the margins of the embolium ciliate; shining, the depressed portion of the scutellum and the elytra (the membrane excepted) opaque; piceous, the apical one or two joints of the antennæ, as well as the second joint in part, the rostrum, and legs ochreous; the elytra ochreous, with the claval suture, the apical half of the embolium, and the cuneus fuscous or black, the corium usually darker towards the apex, the membrane flavo-hyaline. Head (with the eyes) about as broad as long, smooth, the eyes small; rostrum reaching the intermediate coxæ

antennæ with joints 1 and 2 moderately stout, 3 and 4 very slender, 2 about two and one-half times longer than 1, and slightly longer than 3 or 4, the latter subequal in length. Pronotum rapidly narrowing from the base forwards, about as wide in front as the head (with the eyes); the anterior lobe smooth, with a short median sulcus behind; the posterior lobe depressed on the disc and transversely rugulose. Scutellum transversely rugose behind. Elytra with the clavus, corium, embolium, and cuneus sparsely, very finely punctate; the embolium at the apex as wide as the corium; the membrane with a single (outer) nervure only distinct. Orifice of the metastethium short, curving backwards.

Length $2\frac{1}{2}$ millim. (♂ ♀.)

Hab. GUATEMALA, El Tumbador, Las Mercedes, Torola (*Champion*); PANAMA, Bugaba (*Champion*).

Eight specimens, all from the Pacific slope. Allied to *L. varicolor*, Uhler, from the Island of Grenada, but larger and duller, and with the apical half of the embolium infuscate or black. From *L. fusculus*, Reut., the type of which is before me, it differs in the coloration of the elytra, the less produced anterior portion of the head, &c.

4. **Lasiochilus pallidulus.**

Lasiochilus pallidulus, Reut. Öfv. Vet.-Ak. Förh. 1871, p. 562, t. 7. fig. 5 [1]; Monogr. Anthocorid. p. 17 [2]; Uhler, P. Z. S. 1894, pp. 156, 198 [3].

Hab. NORTH AMERICA, S. Carolina [1 2], Texas [2].—MEXICO, Teapa (*H. H. Smith*); GUATEMALA, Chacoj in Vera Paz, Paso Antonio (*Champion*); PANAMA, San Feliz (*Champion*).—ANTILLES, Cuba [2], Guadeloupe [2], St. Vincent [3], Grenada [3].

Nine specimens have been seen from within our limits. This species is recognizable by its pallid coloration and the rather coarsely subseriately punctured clavus, there being also a row of punctures along the inner portion of the corium. In all the examples examined, including one of the types from Texas, there is a rather deep fovea on the disc of the anterior lobe of the pronotum behind, a character not mentioned by Dr. Reuter. Found in plenty by Mr. H. H. Smith in the Island of Grenada.

5. **Lasiochilus foveicollis,** n. sp.

Oblong-ovate, somewhat thickly pilose and also clothed with long, scattered, erect hairs, the margins of the embolium ciliate; shining, the elytra rather duller, the apical portion of the scutellum opaque; piceous, the elytra fuscous, with the shoulders ochreous and the cuneus black, the antennæ obscure testaceous, the rostrum and legs flavescent. Head about as broad as long, smooth, the eyes rather small; rostrum reaching the intermediate coxæ; antennæ with joints 1 and 2 stout, 2 two and one-half times the length of 1 and longer than 3 or 4, the latter very slender and subequal. Pronotum not twice as wide at the base as at the apex, the sides almost straight; the anterior lobe smooth, and with a deep oblong fovea on the middle of the disc behind; the posterior lobe depressed on the disc and transversely rugulose. Scutellum transversely rugose behind. Elytra with the clavus coarsely, subseriately punctate, the corium, embolium, and cuneus more sparsely and more finely punctured; the embolium at the apex nearly as wide as the corium; the membrane with a single (outer) nervure only distinct. Orifice of the metastethium short, backwardly curved.

Length $1\frac{4}{5}$ millim.

Hab. PANAMA, David in Chiriqui (*Champion*).

One specimen. This species is distinguishable from the other Central-American

Lasiochili by its very small size, the rather shining elytra, the deeply foveate pronotum, and the stout first and second joints of the antennæ. From *L. fusculus*, Reut., *L. varicolor*, Uhl.*, and *L. fraternus*, Uhl., it may be separated by the more distinctly punctured elytra, &c.

6. **Lasiochilus sulcatus**, n. sp.

Oblong-ovate, thickly pilose and also clothed with long, scattered, erect hairs, the margins of the embolium ciliate; shining, the depressed portion of the scutellum and the clavus opaque, the rest of the elytra slightly shining; rufo-testaceous, the elytra fusco-testaceous, with the sides at the base broadly and the transverse plica ochreous, the meso- and metapleura piceous, the antennæ, rostrum, and legs flavescent, the eyes black. Head about as broad as long, smooth, the eyes small; rostrum nearly reaching the intermediate coxæ; antennæ elongate, joints 1 and 2 moderately stout, 2 two and one-half times the length of 1 and scarcely longer than 3 or 4, the latter with very long projecting hairs. Pronotum nearly twice as broad at the base as at the apex, in front as wide as the head (with the eyes), the sides slightly sinuate; the anterior lobe almost smooth and with a very distinct narrow median sulcus; the posterior lobe depressed on the disc and transversely rugulose. Scutellum, except in front, transversely rugulose. Elytra with the clavus, corium, embolium, and cuneus finely but distinctly punctate, the punctuation close on the clavus and more scattered elsewhere; the embolium broad at the apex and as wide as the corium; the membrane with a single (outer) nervure only distinct. Orifice of the metastethium short, backwardly curved.

Length 2 millim. (♀.)

Hab. PANAMA, David in Chiriqui (*Champion*).

One specimen. Near *L. punctipennis* and *L. microps*, but smaller and paler, with the longitudinal sulcus on the anterior lobe of the pronotum extending forwards to the ante-apical groove. *L. sulcicollis*, Reut., from Brazil, is an allied form.

7. **Lasiochilus divisus**, n. sp.

Elongate, narrow, somewhat thickly pilose and also clothed with long, scattered, erect hairs, the margins of the embolium ciliate; shining, the depressed portion of the scutellum and the clavus opaque, the rest of the elytra slightly shining; pale testaceous, the eyes and the basal joint of the antennæ blackish. Head about as broad as long, the eyes small; rostrum reaching the middle of the mesosternum; antennæ with joint 2 about two and one-half times the length of 1. Pronotum almost smooth, rounded at the sides in front and there a little wider than the head (with the eyes), about one-third narrower at the apex than at the base; the anterior lobe deeply sulcate down the middle; the posterior lobe depressed on the disc. Scutellum, except in front, rugulose. Elytra with the clavus rather coarsely, subseriately punctured, the corium, embolium, and clavus more sparsely and more finely punctate; the embolium broad at the apex, and there as wide as the corium; the membrane with a single (outer) nervure only distinct. Orifice of the metastethium short, backwardly curved.

Length $2\frac{2}{3}$ millim. (♀.)

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).—ANTILLES, Grenada.

One immature example has been received from Mexico, and there is a second, from Grenada, in the British Museum, both collected by Mr. H. H. Smith. Narrower and more elongate than *L. pallidulus*, the pronotum broader in front and with anterior lobe deeply sulcate down the middle, the corium, embolium, and cuneus sparsely,

* = *L. variabilis*, Uhl. (P. Z. S. 1894, p. 156).

distinctly punctate, the pronotum less narrowed anteriorly and more rounded at the sides in front. It has the pronotal groove deeper than in *L. sulcatus*, from which the present insect also differs in its more elongate shape. The pilose elytra &c. separate it from *Solenonotus*.

LASIOCHILOIDES, n. gen.

Head (including the eyes) broader than long, the produced anterior portion broad, moderately long, and narrowing forwards, the eyes small; rostrum reaching the middle of the metasternum; antennæ with joints 3 and 4 very slender, clothed with long projecting hairs. Pronotum trapezoidal, wide and convex in front, with a short collar placed behind the rounded anterior angles, the sides margined anteriorly, the base arcuate-emarginate. Scutellum flattened behind. Elytra extending beyond the abdomen, with the clavus, corium, embolium, and cuneus distinctly punctured, pilose, the embolium closely ciliate along the outer edge, the membrane with a single distinct nervure. Wings with the hamus issuing a little beyond the decurrent nervure. Orifice of the metastethium long, curving forwards externally. Abdomen with several very long bristly hairs at the apex, the terminal genital segment asymmetrically formed in the male. Legs short; anterior and posterior femora greatly, the intermediate pair more feebly, incrassate, the anterior pair denticulate along their lower edge; anterior tibiæ minutely serrulate along their inner edge, the apex widened and with a short spongy fossa on the inner side. Body narrow, elongate, parallel.

The single species referred to this genus has very much the facies of a *Scoloposcelis* *; but differs from it in the shape of the head and pronotum, the very slender third and fourth antennal joints, the punctured and pilose elytra, &c. From *Lasiochilus* it may be separated by the form of the orifice of the metastethium, the greatly incrassate anterior and posterior femora, the elongate, parallel shape, &c.

1. **Lasiochiloides denticulatus**, n. sp. (Tab. XIX. fig. 3.)

♂. Elongate, narrow, shining, the elytra rather dull; clothed with a few erect hairs, the elytra thickly and shortly pilose, the margins of the embolium closely ciliate, the abdomen with several very long bristly hairs at the apex; piceous, the elytra with the sides below the shoulders broadly, and the transverse plica, ochreous (the ochreous coloration at the base extending down the embolium and covering the basal portion of the corium), the membrane fuscous; the head in front, the antennæ, rostrum, and legs more or less testaceous, the femora infuscate. Head smooth, about as long as broad, the interocular space about three times the width of one of the eyes; antennæ with joints 1 and 2 moderately stout, 3 and 4 very slender, 1 reaching as far as the apex of the head, 2 three times as long as 1 and longer than 3 or 4, the latter equal in length, 2 thickening outwards. Pronotum in front much wider than the head; the anterior lobe smooth, and with an interrupted row of very minute punctures down the middle; the posterior lobe flattened on the disc and transversely rugulose. Scutellum rugulose at the apex. Elytra with the outer portion of the clavus, the corium, and cuneus sparsely, finely punctate, the clavus also with a row of punctures along the inner edge. Abdomen with a single long genital clasper on the left side only.

Length $3\frac{1}{8}$ millim.

Hab. GUATEMALA, Cerro Zunil 4000 feet (*Champion*).

One specimen, from the Pacific slope.

* The species of this genus usually have a hamus in the cell of the wings, but it is sometimes almost obsolete.

LASIOCOLPUS.

Lasiocolpus, Reuter, Monogr. Anthocorid. pp. 5, 27 (1884).

This genus was based upon a single species from Mexico, which is now known to extend southwards to Panama. A second is now added. *Lasiocolpus* is chiefly recognizable by the very elongate rostrum.

1. **Lasiocolpus sinuaticollis.** (Tab. XIX. fig. 5, ♂.)

Lasiocolpus sinuaticollis, Reut. Monogr. Anthocorid. p. 28[1].

Oblong-obovate, thickly pilose, the head and pronotum shining, the elytra duller, the exposed portion of the scutellum and the clavus opaque or subopaque; piceous or fuscous above, paler beneath, the apex of the scutellum, the base and inner edge of the corium, the outer portion of the embolium, and a small spot at the inner apical angle of the latter, sometimes ochreous, the antennæ obscure testaceous, the legs and rostrum flavo-testaceous, the hairs on the elytra fuscous. Head almost smooth; antennæ elongate, fully reaching the apex of the embolium, pilose, and also clothed with very long, scattered, projecting hairs, joint 2 filiform, about three and a half times the length of 1, 3 and 4 very slender, 3 shorter than 2 and a little longer than 4. Pronotum deeply sinuate at the sides, the collar rugulose, the anterior lobe almost smooth, the posterior lobe rugosely punctured. Scutellum transversely rugose. Elytra with the clavus densely, and the inner portions of the corium and embolium sparingly, punctured. Orifice of the metastethium short and backwardly curved.

Length 4–5 millim. (♂ ♀.)

Hab. MEXICO, Vera Cruz (*Sallé, in Mus. Holm.*[1]); GUATEMALA, Cerro Zunil (*Champion*); PANAMA, Bugaba (*Champion*).

The three specimens obtained by myself are smaller than the type (♀), now before me, which, however, does not measure more than 5 millim. in length.

The single example from Guatemala has the apex of the scutellum and some marks on the elytra pale.

2. **Lasiocolpus minor,** n. sp.

Oblong-obovate, thickly pilose, the head and pronotum shining, the elytra duller, the exposed portion of the scutellum and the clavus opaque; fuscous or ferrugineo-fuscous above, rufo-testaceous beneath, the corium and embolium more or less ochreous at the base, the antennæ testaceous, the legs and rostrum flavo-testaceous. Head almost smooth; antennæ elongate, pilose, and also clothed with very long, scattered, projecting hairs, joint 2 three times as long as 1, 3 and 4 very slender, subequal in length, each slightly shorter than 2. Pronotum as in *L. sinuaticollis*. Scutellum transversely rugulose. Elytra with the clavus densely, and the inner half of the corium sparsely, punctured, the embolium with a regular impressed row of punctures near its inner margin. Orifice of the metastethium short, close to the posterior coxæ, backwardly curved.

Length 3–3¼ millim. (♂ ♀.)

Hab. PANAMA, Buguba (*Champion*).

Five specimens. Very like *L. sinuaticollis*, but much smaller, the third antennal joint less elongate, the scutellum less rugose, the embolium with a single regular row of punctures near its inner edge. *L. elegans*, Reut., from Colombia, seems to be an allied form.

EULASIOCOLPUS, n. gen.

Head (with the eyes) wider than the apex of the pronotum, broadly produced in front; eyes very large, oval, reaching to near the anterior margin of the pronotum, and separated by a space of the width of one of them; rostrum reaching the intermediate coxæ; antennæ rather slender, joints 3 and 4 very slender, 2–4 with long projecting hairs. Pronotum transverse, strongly sinuate at the sides, broadly and shallowly arcuate-emarginate at the base, with a distinct collar in front, the sides very narrowly and obsoletely margined, the anterior lobe smooth and convex, and separated from the short posterior lobe by a deep transverse groove. Scutellum deeply transversely sulcate beyond the middle, the apical portion flattened. Elytra almost smooth, with moderately wide embolium, the membrane with a single (outer) nervure distinct. Wings with the hamus issuing beyond the decurrent nervure. Anterior and posterior coxæ almost contiguous. Metasternum carinate down the middle. Orifice of the metastethium transverse, curving a little forwards externally. Terminal genital (ventral) segment of the male asymmetrically formed, with a deep sulcus or opening on the right side only. Legs elongate; anterior femora strongly, the posterior pair moderately, incrassate; the tibiæ setose. Body narrow, oblong-obovate, shining, almost smooth, clothed with scattered pubescence and a few long erect hairs, some of which project beyond the apex of the abdomen.

This well-marked genus belongs to Reuter's section Lyctocoraria, and it seems to be nearest allied to *Asthenidea*. The very large oval eyes, smooth, shining body, dull elytra &c., render it easy of recognition. The sides of the pronotum are very deeply sinuate, as in *Lasiocolpus*.

1. **Eulasiocolpus megalops,** n. sp. (Tab. XIX. figg. 6, 6 *a*, ♂; 7, ♀.)

Black, the antennæ, rostrum, coxæ, and legs testaceous or flavo-testaceous, the posterior femora sometimes infuscate at the apex; the elytra with a subtriangular patch at the base exterior to the clavus, the inner margin of the corium beyond the clavus, and a spot at the inner apical angle of the embolium, ochreous, the membrane with a transverse flavo-hyaline patch adjoining the apex of the cuneus; above and beneath smooth and shining, the posterior lobe of the pronotum and the flattened apical portion of the scutellum transversely rugulose; the elytra opaque, with the cuneus and membrane shining; clothed with long, erect, scattered hairs and also very sparsely pilose, the elytra with decumbent golden hairs. Head with the eyes about as long as broad; antennæ moderately long, joint 1 reaching the apex of the anterior portion of the head, 2 rather more than three times the length of 1, 3 and 4 subequal in length, each shorter than 2. Elytra with a single impressed row of punctures near the inner edge of the embolium.

Length 3–3½ millim. (♂ ♀.)

Hab. GUATEMALA, El Tumbador, Las Mercedes, Cerro Zunil (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Found in plenty in Chiriqui, more sparingly in Guatemala, on the Pacific slope. The specimens were obtained by beating the branches of fallen trees in forest-clearings. The transverse flavo-hyaline space on the membrane is not always visible unless the elytra are opened.

LASIOCOLPOIDES, n. gen.

Head longer than broad, the produced anterior portion stout and about as long as the eyes; eyes (♀) large, oval; rostrum extending to a little beyond the anterior coxæ; antennæ with joints 3 and 4 very slender, 1 and 2 considerably stouter, 2–4 sparsely pilose, with very long projecting hairs intermixed. Pronotum trapezoidal, rapidly narrowing from the base forwards, margined and feebly sinuate at the sides, with a short well-defined collar placed before the declivous anterior angles, the base shallowly arcuate-emarginate. Scutellum transversely sulcate beyond the middle, with the apical portion flattened. Elytra very distinctly and subseriately punctured, pilose, the embolium ciliate externally, the latter rather narrow and at the apex

about half the width of the corium, the membrane with three nervures, the outer one only prominent. Wings with the hamus issuing beyond the decurrent nervure. Orifice of the metasthethium short, curving forwards externally. Anterior and posterior coxæ narrowly, the intermediate coxæ more broadly, separated. Legs elongate, the femora incrassate, the tibiæ clothed with long projecting hairs. Body oblong-obovate, pilose.

The single species referred to this genus is allied to *Lasiocolpus*, Reut., but differs from it in having the orifice of the metastethium curving forwards (instead of backwards), the rostrum very much shorter, the pronotum less sinuate at the sides, the scutellum shining, the punctuation of the elytra subserially arranged, &c. From *Asthenidea* it may be known by the longer head and pronotum, the large eyes, the stouter first and second joints of the antennæ, the pilose elytra, the long, hairy legs, &c.

1. **Lasiocolpoides ciliatus,** n. sp. (Tab. XIX. fig. 8.)

Shining, nigro-piceous or piceous, the base of the embolium, the clavus, corium, legs, and antennæ obscure testaceous, the membrane fuscous, flavescent towards the base; the elytra (the membrane excepted) thickly, the other parts more sparingly, clothed with long semierect hairs, the head and pronotum with still longer hairs intermixed. Head smooth, deeply bifoveate between the ocelli; antennæ rather elongate, joints 1 and 2 moderately stout, 3 and 4 very slender, 2 slightly thickening outwards, and about three times as long as 1, 3 and 4 equal in length, each much shorter than 2. Pronotum in front not wider than the base of the head, smooth, the posterior lobe flattened on the disc and, as well as the apex, transversely rugulose. Scutellum with the apical portion slightly rugulose. Elytra with the clavus, a space along the middle excepted, and the inner half of the corium densely subseriately punctured, the embolium also with a row of punctures along the inner edge.

Length $4\frac{1}{10}$–$4\frac{1}{2}$ millim. (♀.)

Hab. GUATEMALA, Quiché Mountains and San Gerónimo (*Champion*).

Two specimens, one of which is imperfect.

PLOCHIOCORIS, n. gen.

Head longer than broad, exserted, the produced anterior portion stout, the ocelli narrowly separated; eyes large, oval (as seen from above), and distant from the anterior margin of the pronotum; rostrum reaching to the anterior coxæ; antennæ elongate, joints 1 and 2 moderately stout, 1 reaching a little beyond the anterior process of the head, 2 cylindrical, nearly four times as long as 1, and as long as 3 and 4 united, 3 and 4 very slender, subequal in length, 2–4 clothed with very long projecting hairs. Pronotum trapezoidal, short, much narrowed anteriorly, deeply transversely bisulcate on the disc, the anterior sulcus extending downwards across the pleura and separating off the collar in front, the anterior lobe also sulcate down the middle, the sides immarginate and concave, the base feebly emarginate. Scutellum depressed behind. Elytra subparallel, elongate, extending far beyond the abdomen, clothed with very long hairs; embolium very narrow in its basal half, broad behind and there nearly as wide as the corium; membrane with two distinct nervures. Wings without trace of a hamus in the cell. Orifice of the metastethium long, transverse, nearly reaching the pleural groove, curving a little forwards externally. Legs rather elongate, the femora feebly incrassate, the tarsi 3-jointed.

Following Dr. Reuter's system of classification, this genus belongs to the Xylocoraria, but the antennal structure is so like that of *Lasiochilus* and its allies that I prefer to place it in the same division of the Anthocorinæ. The relatively very elongate second antennal joint and the peculiarly formed pronotum are its chief characteristics.

1. **Plochiocoris longicornis,** n. sp. (Tab. XIX. figg. 9, 9 *a*, ♂.)

Lasiochilus basalis, Uhler, P. Z. S. 1894, p. 200 (nec Reuter) [1].

Elongate, subparallel, shining, the pronotal sulci and the apex of the scutellum opaque; sparsely clothed with very long semierect hairs, with a few erect ones intermixed, the margins of the pronotum and embolium ciliate; the antennal joints shortly pilose and also with numerous very long projecting hairs; the legs pilose, with long erect hairs intermixed; piceous, the elytra testaceous, with the apical half of the clavus and the cuneus slightly infuscate, the outer margin of the latter carmine-red; the legs, rostrum, and antennæ flavo-testaceous, the latter with the basal joint and the apex of the second blackish; the membrane and wings iridescent. Head and pronotum smooth, the latter with the posterior lobe slightly rugulose and the sides feebly bisinuate. Scutellum rugulose behind. Elytra almost smooth.

Length (to apex of the elytra) $2\frac{1}{2}$ millim. (♂.)

Hab. PANAMA, David in Chiriqui (*Champion*).—ANTILLES, Grenada [1].

One specimen only was obtained in Chiriqui, but there are five others (including both sexes) from Grenada in the British Museum.

PIEZOSTETHUS.

Piezostethus, Fieber, Wien. ent. Monatschr. iv. p. 265, t. 6. figg. M (1860); Europ. Hemipt. pp. 38, 139; Reuter, Öfv. Vet.-Ak. Förh. 1871, p. 410; Monogr. Anthocorid. pp. 5, 29; Stål, Enum. Hemipt. iii. p. 101.

Subgen. *Stictosynechia,* Reuter, Monogr. Anthocorid. pp. 30, 33.

Subgen. *Arrostus,* Reuter, loc. cit. pp. 31, 35.

A widely distributed genus including numerous species, one at least of which is cosmopolitan. The two new forms now added differ from Dr. Reuter's definition of *Piezostethus* in having the apical half of the scutellum and the greater part of the elytra opaque, and the apical two joints of the antennæ a little stouter than usual. In one of these species the anterior trochanters are armed with a short tooth in the male.

a. The apical half of the scutellum and the elytra shining.
  a'. Elytra uniformly pale stramineous . . . . . *galactinus,* Fieb.
  b'. Elytra pale stramineous, with the cuneus and embolium more or less infuscate . . . . . *sordidus,* Reut.
b. The apical half of the scutellum, the clavus and corium, and the basal half of the embolium, opaque.
  c'. Tibiæ black or piceous; the corium with a transverse whitish patch about the middle . . . . . *albonotatus,* n. sp.
  d'. Tibiæ ochreous, except at the base; the corium with an oblique whitish mark a little below the base . . . . . *bimaculatus,* n. sp.

1. **Piezostethus galactinus.**

Anthocoris galactinus, Fieb. Weit. Beitr. p. 107 (1836) [1].

Piezostethus galactinus, Fieb. Europ. Hemipt. p. 139 [2]; Reut. Monogr. Anthocorid. p. 36 [3].

Xylocoris albipennis, Herr.-Schäff. Wanz. Ins. ix. p. 223, t. 315. fig. 971 [4].

Hab. NORTH AMERICA, Georgia and Illinois [3].—BRITISH HONDURAS (*Blancaneaux*).—EUROPE [2 3]; TRANSCAUCASIA [3]; SYRIA [3]; ALGERIA [3]; MAROCCO [3] &c.

One specimen.

2. **Piezostethus sordidus.**

Piezostethus sordidus, Reut. Öfv. Vet.-Ak. Förh. 1871, p. 560[1]; Monogr. Anthocorid. p. 37[2]; Stål, Enum. Hemipt. iii. p. 101[3]; Uhler, P. Z. S. 1894, pp. 156, 201[4].

Piezostethus binotatus, Reut. Öfv. Vet.-Ak..Förh. 1871, p. 560[5]; Stål, Enum. Hemipt. iii. p. 101[6].

Hab. North America, S. Carolina [5 6], Texas [1 2 3].—Mexico, Orizaba, Tacubaya [2] (*Mus. Vind. Cæs.*); British Honduras (*Blancaneaux*); Guatemala, Pantaleon, Guatemala city, San Gerónimo (*Champion*); Panama, Bugaba (*Champion*).—Brazil [1 2 3]; Antilles, St. Vincent [4], Grenada [4].

Probably a variety of the cosmopolitan *P. galactinus*, Fieb., a species also occurring in North America; but differing from it in having the cuneus more or less infuscate, and in some specimens the embolium also.

3. **Piezostethus albonotatus,** n. sp. (Tab. XIX. figg. 10, ♂; 10 *a*, anterior leg, ♂.)

Short and rather broad, clothed with a very fine scattered pallid pubescence and also with widely scattered long erect hairs; shining, the apical half of the scutellum, the clavus and corium, and the basal half of the embolium, opaque; black, the embolium more or less ochreous in its basal half, the corium nigro-fuscous or fuscous, with a subquadrate transverse whitish patch about the middle, the membrane in great part fuscous; the apical joint of the rostrum testaceous; the antennæ and legs black or piceous, the tarsi obscure testaceous; the mesosternum piceous. Head broader than long, smooth, the eyes large; rostrum reaching almost as far as the intermediate coxæ; antennæ with joints 1 and 2 moderately thickened, 2 becoming stouter towards the apex, 3 and 4 more slender, 2 longer than 3 or 4, the latter subequal in length and clothed with long and short hairs. Pronotum short, convex, narrowing from the base forwards, and with the sides rounded in front, the latter obsoletely margined; the surface almost smooth, the posterior lobe transversely rugulose on the disc. Scutellum rugulose at the apex. Elytra almost smooth. Orifice of the metastethium transverse, short. Legs short.

♂. Anterior femora moderately incrassate; anterior trochanters armed with a short tooth.

Length $1\frac{7}{8}$–2 millim. (♂ ♀.)

Hab. Guatemala, El Tumbador, Las Mercedes, Pantaleon, Zapote (*Champion*); Panama, Bugaba, Tolé (*Champion*).

Twelve examples. This and the following species bear some resemblance to the European *P. obliquus*, Costa, but differ from it in having the clavus, corium, and apical half of the scutellum opaque, the third and fourth antennal joints a little stouter, the eyes larger, the orifice of the metastethium transverse, &c. The wings have the hamus issuing beyond the decurrent nervure.

4. **Piezostethus bimaculatus,** n. sp. (Tab. XIX. fig. 11.)

Very like *P. albonotatus*, but with the whitish mark on the corium oblique and placed much nearer the base, the tibiæ, except at the extreme base, and the tarsi ochreous; the pronotum distinctly sinuate at the sides; the membrane becoming hyaline towards the outer margin; the orifice of the metastethium a little longer and slightly curving forwards externally.

Length $1\frac{7}{8}$ millim. (♀.)

Hab. Guatemala, Pantaleon (*Champion*).

Two specimens. This insect is so like *P. albonotatus* in its general characters, that a more detailed description is unnecessary.

ASTHENIDEA.

Asthenidea, Reuter, Monogr. Anthocorid. pp. 5, 48 (1884).

? *Calliodis*, Reuter, Öfv. Vet.-Ak. Förh. 1871, p. 558; Monogr. Anthocorid. p. 154; Stål, Enum. Hemipt. iii. p. 101.

With one exception, all the species of this genus are American. It differs from *Lasiochilus* in having the pronotum margined at the sides and with the short collar placed before the anterior angles, the elytra finely pubescent (instead of being clothed with long hairs) and with rather narrow embolium, the orifice of the metastethium curving forward (instead of backward), &c. The flattened apical portion of the scutellum (as in *Lasiochilus*) is more or less opaque. If *Calliodis* (the mutilated type of which I have not seen) should prove to be synonymous with *Asthenidea*, the latter name will have to be dropped. The four Central-American species may be separated thus:—

Legs partly piceous; elytra ochreous, with two dark fasciæ . . . . . *nebulosa*, Uhler.
Legs wholly testaceous.
  Elytra slightly shining, testaceous, the cuneus sometimes a little darker; pronotum variable in colour . . . . . *pallescens*, Reut.
  Elytra dull, the cuneus partly black or fuscous; pronotum piceous . . . *picta*, Uhler.
  Elytra moderately shining, ochreous, with two fuscous fasciæ; pronotum rufo-testaceous . . . . . *bifasciata*, n. sp.

1. **Asthenidea nebulosa.** (Tab. XIX. fig. 12.)

Lasiochilus nebulosus, Uhler, P. Z. S. 1894, p. 200[1].

Hab. Guatemala, Rio Naranjo (*Champion*); Panama, Volcan de Chiriqui (*Champion*). —Antilles, Grenada [1].

Three specimens, agreeing with the types in the British Museum. Recognizable by the dull, finely pubescent, ochreous elytra, which have a common transverse fascia crossing the apices of the clavus, corium, and embolium, as well as the cuneus, nigro-fuscous; the legs are partly piceous; the apical half of the scutellum is opaque; the orifice of the metastethium is short and curved forward.

2. **Asthenidea pallescens.**

Asthenidea pallescens, Reut. Monogr. Anthocorid. p. 51 *[1].

Hab. Mexico (*Bilimek, in Mus. Vind. Cæs.*[1]), Vera Cruz (*Sallé, in Mus. Holm.*[1]),

* Dr. Reuter (*op. cit.* p. 103) sinks this name as a synonym of *Poronotus constrictus* (Stål), but this is a mistake. The type of the latter has the pronotum very deeply emarginate at the base, the clavus extremely coarsely punctured, the embolium very broad behind, and the wings without a hamus in the cell. *Poronotus*, as represented by *P. constrictus*, is a valid genus, near *Cardiastethus*.

Teapa (*H. H. Smith*); GUATEMALA, Senahu and San Gerónimo in Vera Paz, Cerro Zunil, Las Mercedes, Dueñas (*Champion*); NICARAGUA, Chontales (*Janson*).

Not rare in Guatemala. Varies in colour, as noted by Dr. Reuter, the head, pronotum, scutellum, and body being sometimes piceous, and the cuneus slightly infuscate. The legs, however, are constantly pale. The embolium is rather narrow throughout, it being only about one-third of the width of the corium at the apex. From the similarly-coloured species of *Cardiastethus* it may be distinguished by the less deeply emarginate base of the pronotum. The Mexican types have been seen.

3. **Asthenidea picta.**

Lasiochilus pictus, Uhler, P. Z. S. 1894, pp. 156, 157, 200[1].

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).—ANTILLES, St. Vincent and Grenada[1].

Two specimens. In this insect the elytra are dull and very finely pubescent, ochreous in colour, with the cuneus in great part fuscous or black; the apical half of the scutellum is opaque; the orifice of the metastethium is short and curved forward; the pronotum is piceous (as in some of the Antillean examples) and margined at the sides; and the legs are pale.

4. **Asthenidea bifasciata,** n. sp. (Tab. XIX. figg. 13, 13 *a*.)

Ovate, shining, the apex of the scutellum opaque, finely pubescent and also clothed with long, scattered, erect hairs; testaceous or rufo-testaceous, the scutellum and the meso- and metasternum piceous or fuscous, the head sometimes slightly infuscate, the eyes black; the elytra ochreous, with a broad irregular transverse fascia across the middle of the coriaceous portion, and the cuneus, except along the outer margin, fuscous, the membrane slightly infuscate; the antennæ, legs, and rostrum testaceous, the basal half of the latter piceous. Head smooth, as broad as long, the eyes rather small; rostrum reaching the intermediate coxæ; antennæ with joints 1 and 2 rather slender, 2 thickened at the apex, three times as long as 1, and longer than 3 or 4, the latter very slender, joints 2–4 shortly pilose and also with long projecting hairs. Pronotum moderately narrowed anteriorly, the sides obsoletely margined towards the apex, the anterior angles rounded and deflexed; smooth, the posterior lobe depressed on the disc in front and faintly transversely rugulose. Scutellum transversely rugose behind. Elytra with the clavus and inner half of the corium closely, finely punctate; the embolium narrow, at the apex less than one-third the width of the corium. Orifice of the metastethium moderately long, curved forward externally.

Length $2\frac{1}{4}$ millim. (♀.)

Hab. PANAMA, David and Tolé in Chiriqui (*Champion*).

Four specimens. This insect closely resembles Dr. Reuter's figure of *Calliodis picturata* (Stål), from Brazil, described from a single mutilated example, which he places amongst the "species et genera sedis incertæ" at the end of the Anthocorinæ in his Monograph. It differs, however, in being less elongate, the pronotum is more deeply emarginate at the base, the rostrum is shorter (extending to the posterior coxæ in *Calliodis*), and the hind angles of the pronotum are not broadly infuscate.

Division **ANTHOCORARIA**, Reuter.

The species of this section of the Anthocorinæ have the third and fourth antennal joints comparatively stout, and the wings with a hamus in the cell.

MACROTRACHELIA.

Macrotrachelia, Reuter, Öfv. Vet.-Ak. Förh, 1871, p. 566; Monogr. Anthocorid. pp. 55, 57 (1884).

The type and only known species of this genus is *Anthocoris nigronitens*, Stål, from Rio Janeiro. *Macrotrachelia* proves to be well represented in Central America, whence six species are now recorded, all abundantly distinct and easily distinguishable by the table given below. The genus is one of the best marked amongst the Anthocoridæ, and at once recognizable by the broad black stripe which extends down the middle of the membrane to the apex. In two of the Central-American species the eyes are long and coarsely faceted in the males. The orifice of the odoriferous sac varies in form according to the species, and the length of the rostrum also.

The *Macrotracheliæ* closely resemble various species of *Thrips*.

a. Elytra shining, each with a very broad whitish or pale flavous vitta occupying the greater part of the clavus and corium (leaving a sutural and a marginal black stripe); rostrum very short, not nearly reaching the anterior coxæ.
  a'. Antennæ elongate, all the tibiæ ochreous at the apex; eyes small in both sexes.
    a''. Antennæ with joint 3 ochreous at the base, joints 1 and 2 moderately stout . . . . . *elongata*, n. sp.
    b''. Antennæ with joints 3 and 4 ochreous, 1 and 2 rather slender . . *albovittata*, n. sp.
  b'. Antennæ comparatively short, entirely black, and the tibiæ also; eyes larger in the male . . . . . *nitida*, n. sp.
b. Elytra opaque, with a shining space down the outer portion of the corium, and with lines of glistening golden pubescence; eyes large and coarsely faceted in the male, small in the female; rostrum about reaching the anterior coxæ.
  c'. Antennæ with joint 3 entirely ochreous; elytra with a flavo-testaceous vitta on the outer portion of the corium . . . . . *thripiformis*, n. sp.
  d'. Antennæ with the basal half of joint 3 ochreous; elytra not or obscurely vittate . . . . . *nigronitens*, Stål.
c. Elytra almost entirely opaque, with lines of silvery pubescence; antennæ short, with joint 3 entirely ochreous; eyes small in the male; rostrum nearly reaching the anterior coxæ . . . . . *opacipennis*, n. sp.

1. **Macrotrachelia elongata**, n. sp. (Tab. XIX. figg. 14, 14 *a*, ♀.)

Elongate, narrow, very sparsely pilose, almost smooth, shining; black, each elytron with a broad pale flavous vitta extending down the clavus and corium from the base and continued along the outer portion of the membrane to near the tip; the base of the third antennal joint and the apices of all the tibiæ ochreous, the tarsi obscure testaceous. Eyes rather small and similar in both sexes. Antennæ elongate,

joints 1 and 2 stout, 3 and 4 much more slender, 2 more than twice as long as 1 and longer than 3, 3 a little longer than 4. Rostrum reaching to a little beyond the apex of the prosternum. Pronotum hollowed and sharply margined at the sides, the lateral angles nodose and somewhat prominent. Scutellum strongly depressed beyond the middle. Orifice of the metastethium long and curved, extending round to the anterior border of the metastethium.

Length $4\frac{1}{4}$–$4\frac{7}{8}$ millim. (♂ ♀.)

Hab. PANAMA, Volcan de Chiriqui 8000 feet (*Champion*).

Four examples.

2. **Macrotrachelia albovittata,** n. sp. (Tab. XIX. fig. 15, ♀.)

Elongate, narrow, very sparsely pilose, almost smooth, shining; black, each elytron with a broad whitish vitta extending down the clavus and corium from the base and continued along the outer portion of the membrane to near the tip; the third and fourth antennal joints, as well as the tip of the second, and all the tibiæ at the apex, ochreous, the tarsi obscure testaceous. Head and pronotum as in *M. elongata*; antennæ elongate, joints 1 and 2 a little stouter than the others, 2 more than twice as long as 1 and a little longer than 3, 3 longer than 4. Rostrum reaching to the apex of the prosternum. Orifice of the metastethium long and sinuously curved.

Length 4 millim. (♀.)

Hab. GUATEMALA, Cerro Zunil 4000 feet (*Champion*).

One specimen. Very like *M. elongata*, but with the first and second antennal joints much more slender and the fourth and fifth joints entirely ochreous, the membrane more broadly hyaline externally, the orifice of the metastethium sinuously curved.

3. **Macrotrachelia nitida,** n. sp. (Tab. XIX. fig. 16, ♂.)

Moderately elongate, narrow, very sparsely pilose, almost smooth, shining; black, each elytron with a broad whitish vitta extending down the clavus and corium from the base and continued along the outer portion of the membrane to near the tip, the tarsi obscure testaceous. Eyes moderately large. Antennæ rather short and stout, joints 3 and 4 more slender than 2 and subequal in length, 2 more than twice as long as 1, 3 much shorter than 2. Rostrum reaching to a little beyond the apex of the prosternum. Pronotum rapidly and obliquely narrowing from the base forwards, the two lobes separated by a very deep transverse groove. Orifice of the metastethium short and transverse.

Length $3\frac{1}{2}$ millim. (♂.)

Hab. PANAMA, Volcan de Chiriqui 3000 feet (*Champion*).

One specimen. Very like *M. elongata* and *M. albovittata*, but with the antennæ shorter, stouter, and entirely black, the eyes larger, the tibiæ uniformly black, the orifice of the metastethium differently shaped.

4. **Macrotrachelia thripiformis,** n. sp. (Tab. XIX. fig. 17, ♂.)

Moderately elongate, narrow, subfusiform, clothed with a few scattered hairs, shining, the elytra opaque, the vittæ excepted; black, the elytra with a streak or space along the inner edge of the clavus and a vitta on the outer portion of the corium extending from the base downwards flavo-testaceous, the membrane broadly hyaline externally, the third antennal joint entirely ochreous or flavous, the tarsi flavo-testaceous at the base; the pronotum and scutellum with very fine scattered silvery pubescence, the elytra with fine lines of glistening golden pubescence on the clavus and outer portion of the corium, the two lines on the corium uniting posteriorly and forming a broad stripe down the cuneus. Head smooth; the eyes large, round, and coarsely faceted in the male, small and finely faceted in the female; antennæ moderately long, joints 1 and 2 rather stout, 2 becoming much thicker towards the apex, 3 and 4 more slender, 2 more

than twice as long as 1, 3 and 4 equal in length, each much shorter than 2. Rostrum about reaching the anterior coxæ. Pronotum slightly hollowed at the sides, the anterior lobe almost smooth, the posterior lobe transversely rugulose. Orifice of the metastethium transverse, curving forward externally.

Length $3\frac{1}{2}$–$3\frac{3}{4}$ millim. (♂ ♀.)

Hab. GUATEMALA, San Gerónimo, Las Mercedes (*Champion*).

Six specimens. Very like *M. nigronitens*, but differing from it in having the third antennal joint entirely pale and the elytra distinctly vittate. The eyes in the male are very large and separated by a space not much wider than the produced anterior portion of the head; those of the female are small and very little more than half the width of the interocular portion of the head.

5. **Macrotrachelia nigronitens.** (Tab. XIX. figg. 18, ♂; 19, 19 *a*, *b*, ♀.)

Anthocoris nigronitens, Stål, Rio Jan. Hemipt. i. p. 43 (♀)[1].

Macrotrachelia nigronitens, Reut. Öfv. Vet.-Ak. Förh. 1871, p. 566, t. 7. fig. 9 (♀)[2]; Monogr. Anthocorid. p. 58[3]; Stål, Enum. Hemipt. iii. p. 102[4].

Moderately elongate, narrow, subfusiform, clothed with a few scattered hairs, shining, the elytra opaque, a narrow space down the outer part of the corium and the outer edge of the cuneus excepted; black, the elytra sometimes with a narrow piceous or fusco-testaceous vitta on the outer part of the corium extending from the base downward, the membrane broadly hyaline externally, the basal half of the third antennal joint ochreous, the tarsi usually testaceous at the base; the posterior lobe of the pronotum and the scutellum with very fine scattered silvery pubescence, the elytra with fine lines of glistening golden pubescence on the clavus and outer portion of the corium. Head, eyes, antennæ, and rostrum as in *M. thripiformis*. Pronotum hollowed at the sides, the anterior lobe smooth, the posterior lobe transversely rugulose. Orifice of the metastethium transverse, curving forward externally.

Length $3\frac{1}{2}$–4 millim. (♂ ♀.)

Hab. PANAMA, Volcan de Chiriqui 2000 to 8000 feet (*Champion*).—BRAZIL, Rio Janeiro [1–4].

Eighteen examples. Very like *M. thripiformis*, but with the third antennal joint constantly black at the apex, and the corium usually black, rarely with an indistinct paler vitta down the shining outer portion. The eyes, as in that species, are large, rounded, and coarsely faceted in the male. In one specimen, apparently immature, the head and pronotum are piceous and the femora reddish. The type, now before me, is female, not a male as stated by both Stål and Reuter.

6. **Macrotrachelia opacipennis,** n. sp. (Tab. XIX. fig. 20, ♀.)

Moderately elongate, narrow, subfusiform, clothed with a few scattered hairs, shining, the elytra opaque, the outer margin of the cuneus excepted; black, the third antennal joint ochreous, the membrane narrowly whitish externally; the elytra with fine lines of glistening silvery pubescence—one down the clavus, one along its inner margin, and two down the outer part of the corium, the latter united posteriorly and continued as a single line on the cuneus,—the posterior lobe of the pronotum and the scutellum also with a little scattered silvery pubescence. Head smooth, the eyes small; antennæ stout, rather short, joints 3 and 4 more slender than 2, 3 twice as long as 2 and slightly shorter than 4. Rostrum nearly reaching the anterior coxæ. Pronotum hollowed at the sides, the anterior lobe smooth, the posterior lobe transversely rugulose. Orifice of the metastethium transverse, becoming a little curved outwards.

Length $3\frac{1}{2}$ millim. (♀.)

Hab. Panama, Boquete in Chiriqui 3500 feet (*Champion*).

One specimen. Easily distinguishable by the opaque elytra, with fine lines of glistening silvery pubescence, the stout antennæ, with the third joint wholly ochreous, the small eyes, &c.

MACROTRACHELIELLA, n. gen.

Head as long as the pronotum, the basal portion rather long and cylindrical and forming a continuous outline with the narrow apex of the pronotum; eyes small in the female, larger in the male, and distant from the front of the pronotum, the ocelli placed a little behind them; rostrum short, not reaching the anterior coxæ; antennæ moderately elongate, rather slender, joints 3 and 4 more slender than 2. Pronotum immarginate at the sides, with a short collar in front; the anterior lobe narrow, convex, and subconical; the posterior lobe short, wide, and raised, rapidly and obliquely narrowing forward, and rather deeply arcuate-emarginate behind; the lateral angles produced into a short outwardly-projecting tooth. Scutellum transversely sulcate beyond the middle, the apical portion flattened. Elytra with a narrow linear embolium, the membrane not hyaline externally, and with a single prominent nervure. Mesosternum greatly developed, convex, with a short keel-like projection in the centre in front. Metasternum very short. Anterior coxæ narrowly, the two other pairs very widely, separated. Orifice of the metastethium carinate in front, long, and curving round externally to the anterior border of the metastethium. Legs slender, the femora moderately thickened. Body oblong, smooth, clothed with a few scattered erect hairs.

In this curious genus the anterior lobe of the pronotum is narrow and subconical, its apex forming a continuous outline with the cylindrical, prolonged basal portion of the head; the lateral angles of the pronotum are dentiform; the embolium is reduced to a narrow linear strip at the sides; and the entire surface is smooth and shining. It is nearest allied to *Macrotrachelia*, but differs from that genus in the relatively narrower anterior lobe of the pronotum, the very short metasternum, the unicolorous membrane, &c.

1. **Macrotracheliella lævis,** n. sp. (Tab. XIX. figg. 21, ♂; 22, 22 *a*, ♀.)

Very shining, black, the suture of the elytra and the base of the tarsi more or less flavescent, the third and fourth antennal joints ochreous, the membrane narrowly pale along the cuneal suture; clothed above and beneath with a few scattered erect hairs, some of which project beyond the apex of the abdomen, the antennæ sparsely pilose. Antennæ with joint 1 extending as far as the apical process of the head, 2–4 almost equal in length, 2 nearly three times as long as 1 and thickened towards the tip.

Length $2\frac{1}{2}$–$2\frac{4}{5}$ millim. (♂ ♀.)

Hab. Mexico, Teapa in Tabasco (*H. H. Smith*: ♂); Panama, Bugaba, Volcan de Chiriqui (*Champion*: ♀).

Two females and one male. In the Teapa male the suture of the corium only is flavescent, but in one of the Chiriqui females this colour extends forward along the claval suture to a little beyond the apex of the scutellum. The third example, from Bugaba, is of a rufo-piceous colour, due no doubt to immaturity.

ANTHOCORIS.

Anthocoris, Fallén, Hemipt. Suec. p. 65 (1826); Fieber, Wien. ent. Monatschr. iv. p. 263, t. 6. figg. H; Europ. Hemipt. pp. 38, 136; Reuter, Monogr. Anthocorid. pp. 56, 66.
Rhynarius, Hahn, Wanz. Ins. i. p. 104 (1831).
? *Zopherocoris*, Reuter, Öfv. Vet.-Ak. Förh. 1871, p. 565; Monogr. Anthocorid. p. 156; Stål, Enum. Hemipt. iii. p. 102.

A holarctic genus, extending in the New World to as far south as the mountains of Panama. Of the seven described American species, four occur within our limits, whence four others are now added. Some of the Old World forms are said to attack lepidopterous larvæ. It is probable that *Zopherocoris*, based upon a mutilated insect from Brazil, will prove to be inseparable from *Anthocoris*, one of the new species here added * having the anterior dentate. The Central-American forms may be separated thus;—

a. Elytra with the cuneus and the apices of the corium and embolium shining, the membrane with a triangular white patch at the base . . . . . *albiger*, Reut.
b. Elytra uniformly opaque.
  a'. Membrane pale, with a fuscous patch in the centre . . . . . *fulvipennis*, Reut.
  b'. Membrane smoky or fuscous, the basal margin at most pale.
    a''. Femora and tibiæ black; antennæ with the base of the third joint ferruginous . . . . . *nigripes*, Reut.
    b''. Femora at the apex entirely, and the tibiæ more or less, pale.
      a'''. Pronotum uniformly black: length of the body 3–3½ millim.
        *a*⁴. Antennæ with joint 2 in great part pale, 3 much longer than 2. *variipes*, n. sp.
        *b*⁴. Antennæ with joints 2 and 3 broadly pale at the base, 3 not longer than 1 . . . . . *variicornis*, n. sp.
      b'''. Pronotum with the posterior lobe rufo-testaceous; antennæ with joints 2 and 3 entirely pale; anterior and intermediate tibiæ ochreous: length of the body 2½ millim. . . . . *rufotinctus*, n. sp.
  c'. Membrane, antennæ, and legs black; antennæ stout; eyes large and the anterior femora dentate in the ♂: body elongate, narrow . . . *dentipes*, n. sp.
c. Elytra shining . . . . . *antevolens*, B. White.

1. Anthocoris albiger.

Anthocoris albiger, Reut. Monogr. Anthocorid. p. 70[1].

Hab. Mexico, Orizaba and Guadalupe (*Bilimek, in Mus. Vind. Cæs.*[1]).

* In addition to these, we possess an example (♂) of another species, from Mexico city (*H. H. Smith*), but it is too immature for description. In this insect the entire upper surface is testaceous and shining (as in *A. antevolens*, B. White); the antennæ are much longer than the head and pronotum united, with the apices of the second and third joints, and the fourth entirely, black; and the membrane has three pale longitudinal streaks.

In this species, the types of which are before me, the elytra are opaque, with the cuneus and the apices of the embolium and corium shining, and the membrane has a broad triangular white patch at the base.

2. **Anthocoris fulvipennis.**

Anthocoris fulvipennis, Reut. Monogr. Anthocorid. p. 69 [1].

Hab. Mexico, Tacubaya (*Bilimek, in Mus. Vind. Cæs.* [1]).

Very like *A. nigripes*, but narrower, the elytra lighter in colour, with lines of glistening golden pubescence, the membrane pale, with a dark patch in the middle, the antennæ with the basal half of the second joint, as well as the base of the third, ferruginous, the legs paler. The types have been examined.

3. **Anthocoris nigripes.**

Anthocoris nigripes, Reut. Monogr. Anthocorid. p. 69 [1].

Hab. Mexico (*Bilimek, in Mus. Vind. Cæs.* [1]).

Distinguishable by its almost entirely black legs and antennæ, the latter with the base of the third joint * ferruginous, and opaque, fuscous elytra, the elytra with lines of glistening silvery pubescence. The two specimens belonging to the Vienna Museum have been seen.

4. **Anthocoris variipes,** n. sp. (Tab. XIX. fig. 23 †.)

Narrow, black or pitchy-black, the venter sometimes rufous along the middle; the elytra fuscous or sordid ochreous, with the margins of the embolium ochreous, the cuneus sometimes blackish, the membrane uniformly smoky; the antennæ usually with the second joint testaceous or ferruginous to near the apex, in some specimens entirely black; the legs testaceous or ferruginous, usually with the tibiæ at the base and apex, and the tips of the tarsi, more or less infuscate, the femora sometimes blackish to near the apex; opaque, the ante-ocular portion of the head, the neck, the scutellum in front, and the venter shining, clothed with a very sparse, fine, golden or silvery pubescence, which is subserially arranged on the elytra. Head finely rugulose between and behind the eyes, the latter a little larger in the male than in the female; rostrum reaching the anterior coxæ; antennæ moderately long, joint 2 nearly three times as long as 1 and one-half longer than 3, 3 and 4 equal in length. Pronotum rugulose, transversely depressed on the middle of the disc, the sides slightly sinuate. Elytra parallel to the apex of the embolium, smooth, the membrane with the outer nervure only distinct.

Length 3–3½, breadth 1–1¼ millim. (♂ ♀.)

Hab. Guatemala, Quezaltenango, Totonicapam, Cerro Zunil 5000 to 10,000 feet (*Champion*).

Twelve examples, three of which have the antennæ entirely dark; the one from Totonicapam, a female, is considerably larger than the others. Very like the Mexican *A. nigripes*, but with the antennæ more elongate, the femora and tibiæ not entirely black, the pronotum slightly sinuate at the sides. The coloration of the legs and antennæ is variable. The specimens were probably beaten from pines.

* Not the base of the second, as stated by Dr. Reuter.

† The elytra are more parallel-sided than represented by our artist.

5. **Anthocoris variicornis,** n. sp.

Comparatively broad, black, the elytra fuscous, with the margins of the embolium ochreous; the antennæ with the basal two-thirds of each of the joints 2 and 3 ochreous; the legs ochreous, with the apices of the tibiæ and tarsi, and the femora to near the tip, black; opaque, sparsely clothed with a very fine golden pubescence, which is subserially arranged on the elytra. Head and pronotum rugulose, the interocular portion of the former nearly twice as wide as one of the eyes, the latter small, the pronotum not sinuate at the sides; antennæ comparatively short, joints 1 and 3 subequal in length, 3 about twice as long as 1, 4 longer than 3. Elytra as in *A. variipes*.

Length $3\frac{1}{4}$, breadth $1\frac{1}{4}$ millim. (♀.)

Hab. Panama, Volcan de Chiriqui 8000 feet (*Champion*).

One mutilated specimen. It is perhaps an extreme form of *A. variipes*, but the relative lengths of the joints of the antennæ are different.

6. **Anthocoris rufotinctus,** n. sp. (Tab. XIX. fig. 24.)

Narrow, nigro-piceous, the posterior lobe of the pronotum rufo-testaceous, the elytra sordid ochreous, with the apical half of the corium infuscate and the outer edge of the cuneus rufescent, the membrane uniformly smoky; the antennæ with joints 1 and 4 fuscous, 2 rufo-testaceous, and 3 ochreous; the legs piceous, the anterior and intermediate tibiæ, and the bases of the tarsi, ochreous; opaque, sparsely clothed with a fine golden pubescence. Head (except in front) rugulose, somewhat exserted, the interocular space slightly wider than one of the eyes, the latter small; antennæ rather slender, joint 2 a little more than twice as long as 1, 3 much longer than 1 and shorter than 4; rostrum reaching the anterior coxæ. Pronotum rugulose, rounded at the sides in front, very feebly depressed on the disc. Elytra parallel, smooth, the membrane with the outer nervure only distinct.

Length $2\frac{1}{2}$, breadth $\frac{7}{8}$ millim. (♂.)

Hab. Guatemala, Cerro Zunil (*Champion*).

One specimen. Much smaller than *A. variipes*, the head more exserted, the antennæ not so stout, and with the second and third joints entirely pale, the pronotum not sinuate at the sides and with the posterior lobe rufo-testaceous, the cuneus rufescent externally.

7. **Anthocoris dentipes,** n. sp. (Tab. XIX. fig. 25, ♀.)

Narrow, deep black, the shoulders of the elytra obscure ferruginous, the tarsi testaceous at the base; opaque, the head and the anterior half of the scutellum shining, clothed with a widely scattered golden pubescence, which is serially arranged on the elytra, and also with a few long, erect, blackish hairs. Head smooth; the eyes large in the male, much smaller in the female; antennæ rather short, stout, joint 2 thickening outward and about two and one-half times the length of 1, 3 longer than 1 and a little shorter than 4. Pronotum slightly depressed on the disc, rugulose, rounded at the sides in front. Elytra parallel to the apex of the embolium, smooth, the membrane without distinct nervures. Anterior femora in the male armed with a short tooth on the lower side towards the apex.

Length $2\frac{2}{3}$–$2\frac{7}{8}$, breadth $\frac{4}{5}$–1 millim. (♂ ♀.)

Hab. Panama, Tolé, Peña Blanca (*Champion*).

Two specimens. The male (which is in a mutilated condition) has the anterior femora armed with a short tooth beneath, exactly as in the Brazilian *Zopherocoris armatus*, Reut., the type (♀) of which is before me; it is also much narrower than the female and has large eyes. The female has the femora unarmed and the eyes quite

small. I am unable to find any character by which to separate this species from *Anthocoris*.

8. Anthocoris antevolens.

Anthocoris antevolens, B. White, Ent. Monthly Mag. xvi. p. 146 [1]; Reut. Monogr. Anthocorid. p. 77 [2]; Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 278 [3].

Hab. North America, Southern and Lower California [1 2 3], Arizona [3].—Mexico [3].

Included in our enumeration on Prof. Uhler's authority.

TRIPHLEPS.

Triphleps, Fieber, Wien. ent. Monatschr. iv. p. 266, t. 6. figg. P (1860); Europ. Hemipt. pp. 39, 140; Stål, Enum. Hemipt. iii. p. 102; Reut. Monogr. Anthocorid. pp. 57, 89.

A widely-distributed genus including upwards of twenty described species, all of very small size and some of them variable in colour. Six are known to me from within our limits, two of which are treated as new, though they are represented in each case by single examples. The males appear to have the second antennal joint more or less thickened in many of the species. Our six representatives may be separated thus:—

a. Posterior lobe of the pronotum rugose or rugulose.
  a'. Elytral pubescence golden; membrane fuscous: length 2½ millim. . *fuscus*, Reut.
  b'. Elytral pubescence not metallic; membrane subhyaline: length 1⅔–2 millim.
    a''. Legs not entirely flavous; elytra partly black.
      a'''. Clavus flavous, except at the base . . . . . *insidiosus*, Say.
      b'''. Clavus entirely piceous . . . . . *tristicolor*, B. White.
    b''. Legs entirely flavous; elytra testaceous, with the cuneus slightly darker . . . . . *pumilio*, n. sp.
b. Posterior lobe of the pronotum very coarsely, rugosely punctured: length 1⅔–2 millim.
  c'. Pronotum moderately convex, with the sides obliquely converging forward; elytra partly testaceous . . . . . *perpunctatus*, Reut.
  d'. Pronotum strongly convex, with the sides rounded; elytra entirely black . . . . . *aterrimus*, n. sp.

1. Triphleps fuscus.

Triphleps fuscus, Reut. Monogr. Anthocorid. p. 99 [1].

Hab. Mexico, Cordova (*Sallé*), Orizaba, Mexico city (*H. H. Smith*); Guatemala, Quezaltenango, San Gerónimo (*Champion*).—Colombia, Bogota [1]; Venezuela, La Guayra [1].

Eleven specimens have been received of this species, the females agreeing with the Venezuelan type before me. The single male, from Mexico city, has the second

antennal joint thickened, the first joint testaceous, and the third infuscate. The females have the second antennal joint slender, the first joint more or less infuscate, and the third partly or entirely testaceous. The pubescence is whitish on the head, pronotum, scutellum, and under surface, and almost golden on the elytra.

2. Triphleps insidiosus.

Reduvius insidiosus, Say, Descr. new sp. Heteropt. Hemipt. (New Harmony, Dec. 1831) [1]; Complete Writings, i. p. 357 [2].
Triphleps insidiosus, Reut. Monogr. Anthocorid. p. 97 [3].
Anthocoris pseudo-chinche, Fitch, First and Second Reports on the Noxious, Beneficial, and other Insects of New York, p. 295 [4].
Anthocoris lepidus, Stål, Rio Jan. Hemipt. i. p. 43 [5].
Triphleps lepidus, Reut. Öfv. Vet.-Ak. Förh. 1871, p. 564 [6].
Triphleps rugicollis, Reut. loc. cit. p. 565 [7].
Triphleps latulus, Reut. loc. cit. p. 565 [8].
Triphleps perpunctatus, Uhler, P. Z. S. 1894, p. 201 * (nec Reuter) [9].

Hab. North America [1 2], Eastern United States from New York [3 4] to Texas [3 8], S. Carolina [8].—Mexico [3], Fortin in Vera Cruz (*H. H. Smith*), Chapultepec (*Bilimek, in Mus. Vind. Cæs.*); Guatemala, near the city (*Champion*).—Brazil [3 5 6]; Argentina [6]; Antilles, St. Thomas [3], Grenada [9].

We possess two specimens of this species from within our limits, and I have seen two others belonging to the Vienna Museum. The second antennal joint is thickened in the male.

3. Triphleps tristicolor.

Triphleps tristicolor, B. White, Ent. Monthly Mag. xvi. p. 145 [1]; Reut. Monogr. Anthocorid. p. 98 [2]; Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 278 [3].

Hab. North America, California [1 2], Lower California [3], Margarita I. [3], Texas [2].—Mexico, Mexico city (*H. H. Smith*), Tacubaya, Chapultepec, San Marcos (*Bilimek, in Mus. Vind. Cæs.*), Tabasco (*coll. Signoret* [2]); Guatemala, near the city (*Champion*); Panama, San Miguel in the Pearl Is. (*Champion*).

This insect is evidently a dark form of *T. insidiosus*; it has the clavus entirely piceous.

4. Triphleps pumilio, n. sp.

Ovate, sparsely pubescent, shining, nigro-piceous above, paler beneath; the ante-ocular portion of the head, the rostrum, antennæ, and legs testaceous; the elytra testaceous, with the cuneus slightly infuscate, the membrane pale; the venter ferruginous. Head short and broad, the eyes very large; antennæ moderately

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* *T. perpunctatus* of Prof. Uhler's St. Vincent list (*op. cit.* p. 156) belongs to a different species.

long, joint 2 stouter and much longer than 3. Pronotum with the sides obliquely converging from the base, the anterior angles rounded; rugosely punctured, the posterior lobe depressed on the disc in front, the anterior lobe almost smooth behind. Scutellum transversely rugulose. Elytra with the clavus sparsely and very coarsely, and the other parts closely and finely, punctate. Orifice of the metastethium very long and curved.

Length $1\frac{2}{3}$ millim. (♂.)

Hab. GUATEMALA, near the city (*Champion*).

One specimen. Allied to *T. perpunctatus*, but smaller, the pronotum less rugose, the clavus sparsely punctured, the corium and embolium much more finely punctate.

5. **Triphleps perpunctatus.**

Triphleps perpunctatus, Reut. Monogr. Anthocorid. p. 100[1] (nec Uhler).

Hab. MEXICO (*Sallé, in Mus. Holm.*[1]), Orizaba (*H. H. Smith*); GUATEMALA, Dueñas (*Champion*).

The single specimen (♀) from Guatemala differs from the type (♂) in having the eyes smaller, the head a little more produced in front, the elytra paler, and the legs entirely testaceous; it may belong to another species. The one from Orizaba is immature.

6. **Triphleps aterrimus,** n. sp.

Broad ovate, robust, very sparsely pubescent, shining, black; the apical half of the rostrum, the head in front (narrowly), the tarsi, and the anterior tibiæ testaceous, the intermediate and hind tibiæ obscure testaceous at the base; the antennæ with joint 1 piceous, 2 and 3 testaceous, and 4 ferruginous. Head broad, rugulose, the eyes large and widely separated; antennæ rather slender, moderately long, joint 2 a little longer than 3. Pronotum convex, feebly arcuate-emarginate at the base, rounded at the sides, the latter margined anteriorly; very coarsely and closely punctured, the anterior lobe almost smooth on the disc behind. Scutellum transversely rugulose, and also minutely punctate, the transverse sulcus deep. Elytra very coarsely, closely punctate, the punctures on the corium more scattered and subserially arranged.

Length 2 millim.

Hab. PANAMA, Peña Blanca (*Champion*).

One specimen, probably a female. Very like *T. perpunctatus*, but uniformly black above (the apex of the anterior portion of the head only being pale), the pronotum more convex and with the sides rounded, the corium more sparsely punctate.

PARATRIPHLEPS, n. gen.

Head very short and broad, the eyes widely separated, the ocelli placed close to their internal basal angles; antennæ short, the joints about equal in thickness, 2 not longer than the width of the head between the eyes. Pronotum convex, deeply arcuate-emarginate at the base, and completely margined at the sides. Scutellum transversely depressed before the flattened apical portion. Elytra with the embolium concave, and at the apex half the width of the corium. Wings with a hamus in the cell. Orifice of the metastethium long and curved. Legs short, the anterior femora stouter than the others. Body ovate, almost glabrous.

The minute species referred to this genus, a single female specimen only of which

has been obtained, is evidently a near ally of *Triphleps perpunctatus*, Reut., &c.; but the laterally margined pronotum, and the very deeply emarginate base of the latter, exclude it from *Triphleps*.

If the insects from Grenada and St. Vincent which have been determined by Prof. Uhler as the Antillean *Brachysteles pallidus*, Reut., are correctly named, that species would probably have to be included in *Paratriphleps*, the wings having a hamus in the cell.

1. **Paratriphleps læviuscúlus,** n. sp. (Tab. XIX. fig. 26.)

Rufo-testaceous, shining, the eyes black, the rostrum, the anterior margin of the pronotum, and the tip of the scutellum piceous, the posterior lobe of the pronotum slightly infuscate behind; the elytra flavescent, mottled with fuscous, the apex of the cuneus dark, the membrane hyaline; the antennæ testaceous, with joint 3 piceous at the apex, 4 ferruginous; the legs flavous, the intermediate and hind tibiæ piceous from the middle to the apex. Head smooth; antennæ short, not reaching the hind angles of the pronotum, rather slender, joint 2 slightly longer than 3. Pronotum convex, moderately narrowed anteriorly, the sides slightly sinuate at the middle and rounded in front; the anterior lobe smooth, the posterior lobe rugulose, the latter not depressed on the disc. Scutellum faintly transversely rugulose. Elytra with the cuneus only distinctly punctate, for the rest very sparsely, minutely, indistinctly punctate, the embolium slightly rounded along the outer edge.

Length $1\frac{1}{2}$ millim. (♀.)

Hab. Panama, Volcan de Chiriqui 3000 feet (*Champion*).

This insect differs from Dr. Reuter's description of *Brachysteles pallidus*, from the Islands of St. Thomas and St. John, in the almost smooth elytra, the smoother anterior lobe of the pronotum, the partly infuscate intermediate and hind tibiæ, &c.

MELANOCORIS, n. gen.

Head with the ante-ocular portion a little longer than the inter-ocular, the eyes very small, the ocelli minute, antennæ short; joints 1 and 3 subequal in length, 2 twice as long as 1, 4 longer than 3; rostrum short, only reaching the anterior coxæ. Pronotum short, along the median line not quite so long as the head, rounded at the sides anteriorly and deeply emarginate at the base, the anterior lobe scarcely callous on the disc, and without a distinct collar in front. Scutellum flattened behind. Elytra with the cuneus greatly developed, about one-fifth shorter than the embolium, the membrane with four prominent nervures. Metasternum broadly rounded behind. Legs comparatively short; tarsi 3-jointed. Posterior coxæ widely separated. Orifice of the metastethium short, backwardly curved. Body broadly obovate, opaque, the entire upper surface finely rugulose, the elytra without well-defined punctures.

This genus is allied to *Tetraphleps* and *Acompocoris*. which include various palæarctic forms found upon pine-trees. It differs from them in having the hind coxæ more widely separated, the antennæ and legs much shorter, the pronotum without a distinct collar in front and the anterior lobe scarcely callous on the disc, the entire upper surface rugulose and opaque. The insect from which the above characters are taken was also, I believe, found upon pine-trees, at a high elevation, in the Los Altos region of Guatemala.

1. **Melanocoris obovatus,** n. sp. (Tab. XIX. fig. 27 *.)

Entirely opaque, clothed with a fine scattered silvery pubescence, which is serially arranged on the elytra, the antennæ and legs finely pubescent; black, the elytra with the embolium and cuneus at the sides, the inner apical angles of the corium, and the transverse plica, obscure ferruginous, and the membrane fuscous; the second antennal joint, the tibiæ, and the base of the tarsi ferruginous, the third antennal joint piceous. Pronotum with the sides obliquely converging from the base, the two lobes separated by a faint transverse depression, the surface transversely rugulose. Elytra with indications of very fine, shallow, obsolete punctures.

Length 3, breadth $1\frac{1}{3}$ millim. (♀.)

Hab. GUATEMALA, Totonicapam between 8500 and 10,500 feet (*Champion*).

One specimen.

Division **XYLOCORARIA,** Reuter.

This section of Anthocorinæ, following Dr. Reuter's system of classification, includes a heterogeneous assemblage of genera agreeing in a single character only, viz. the absence of a hamus in the cell of the wings. This character, in one genus at least, *Scoloposcelis*, is a variable one. In *Solenonotus* the antennæ have the third and fourth joints very slender and clothed with long projecting hairs, as in the species of Lyctocoraria.

CARDIASTETHUS.

Cardiastethus, Fieber, Wien. ent. Monatschr. iv. p. 266, t. 6. figg. R (1860); Europ. Hemipt. pp. 39, 141; Stål, Enum. Hemipt. iii. p. 103; Reuter, Monograph. Anthocorid. pp. 114, 130.

A very widely distributed genus, including fifteen described species, seven of which are American. Four are known to me from within our limits. Its chief characters are the very deeply emarginate base of the pronotum, the slender and somewhat fusiform third and fourth joints of the antennæ, the transversely sulcate scutellum, and the absence of a hamus in the cell of the wings: these points of distinction will serve to separate the species from the various very similar *Lasiochili* and *Asthenideæ*.

a. Elyra rather sparsely punctate; the embolium narrow, at the apex about half the width of the corium: body oblong-ovate.
  a'. Pronotum and elytra pubescent, the posterior lobe of the pronotum rugulose . . . . . *tropicalis,* n. sp.
  b'. Pronotum and elytra pilose, the posterior lobe of the pronotum closely rugose . . . . . *rugicollis,* n. sp.

b. Elytra very closely punctate; the embolium broad, at the apex nearly as wide as the corium: body ovate.
  c'. Pronotum strongly rounded at the sides, the hind angles and elytral margins rufo-testaceous . . . . . *limbatellus,* Stål.
  d'. Pronotum feebly rounded at the sides, entirely pale, or with the anterior lobe only infuscate; elytra variable in colour . . . . . *assimilis,* Reut.

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* The elytra are broader behind than represented by our artist.

1. **Cardiastethus tropicalis,** n. sp. (Tab. XIX. fig. 28.)

Oblong ovate, shining, the elytra dull, finely pubescent and also with a few long scattered erect hairs; piceous or piceo-ferruginous, the elytra testaceous, with the inner portion of the cuneus blackish, the dark coloration sometimes occupying the whole of the cuneus and extending to the apex of the embolium, the membrane smoky; rostrum and legs testaceous; antennæ varying in colour from piceous to almost entirely testaceous. Head smooth, bifoveate between the ocelli; the eyes large and coarsely faceted in the male, smaller in the female; antennæ with joints 1 and 2 moderately stout, 3 and 4 slender, 2 about three times as long as 1 and thickened towards the tip; rostrum not reaching beyond the anterior coxæ. Pronotum rounded at the sides in front, the sides distinctly margined anteriorly, the anterior lobe almost smooth, the posterior lobe transversely rugose, strongly depressed on the disc in front, the base very deeply emarginate. Scutellum with a broad transverse rugulose depression before the apex. Elytra subparallel to the apex of the embolium, distinctly, not very closely punctate; the embolium narrow, at the apex about half the width of the corium; the membrane with an inner and an outer nervure distinct. Orifice of the metastethium long and curved.

Length $2\frac{1}{3}$–3 millim. (♂ ♀.)

Hab. GUATEMALA, El Tumbador, Cerro Zunil, Las Mercedes (*Champion*); PANAMA, David (*Champion*).—ANTILLES, Grenada.

Var. Above and beneath testaceous, the elytra more sparsely punctured.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Ten specimens. Not unlike the Palæarctic *C. fasciiventris* (Garb.), but more shining, the elytra more sparsely and not so finely punctate. From *Asthenidea pallescens*, which is equally variable in colour, it may be separated by the deeply emarginate base of the pronotum, &c.

There are several examples of *C. tropicalis* from Grenada in the British Museum, mixed with the series of *Lasiochilus fraternus*, Uhler, collected by Mr. H. H. Smith.

2. **Cardiastethus rugicollis,** n. sp.

Oblong ovate, shining, the elytra dull; pilose and with a few long erect hairs, the margins of the pronotum and embolium ciliate; piceous, the elytra and antennæ obscure testaceous, the legs testaceous. Head almost smooth, a little broader than long, the eyes rather large; antennæ with joints 1 and 2 moderately stout, 3 and 4 slender and somewhat fusiform, 2 three times as long as 1; rostrum reaching as far as the posterior portion of the anterior coxæ. Pronotum very short, rugose, with the callose portion of the anterior lobe smooth, deeply emarginate at the base and much narrowed in front, the anterior angles declivous, the sides obsoletely margined anteriorly. Scutellum with a deep, transverse, rugulose depression before the apex. Elytra somewhat closely punctate; the embolium narrow, at the apex about half the width of the corium; the membrane with an inner and an outer nervure distinct. Orifice of the metastethium long and curved.

Length 2 millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).—ANTILLES, St. Vincent, Grenada.

One specimen. Smaller than *C. tropicalis*, the pronotum shorter, more rugose, and more narrowed in front, the upper surface clothed with longer hairs, these projecting laterally, so that the pronotum and embolium appear to be ciliate at the sides. The present species is also extremely like various *Lasiochili*; but it may be separated from

them by the very deeply emarginate base of the pronotum, the transversely sulcate scutellum, &c.

Some of the specimens named by Prof. Uhler as *C. consimilis* and *C. assimilis*, from St. Vincent and Grenada respectively (P. Z. S. 1894, pp. 156, 201), no doubt belong here: they are smaller than the insect described, and have the cuneus partly blackish.

3. **Cardiastethus limbatellus.** (Tab. XIX. fig. 29.)

Xylocoris limbatellus, Stål, Rio Jan. Hemipt. i. p. 44 [1].

Dasypterus limbatellus, Reut. Öfv. Vet.-Ak. Förh. 1871, p. 564, t. 7. fig. 7 [2]; Stål, Enum. Hemipt. iii. p. 102 [3].

Cardiastethus limbatellus, Reut. Monogr. Anthocorid. p. 138 [4].

Ovate, shining, the elytra duller, finely pubescent; nigro-piceous, the head (except at the base), the hind angles of the pronotum broadly, and the outer margins of the elytra rufo-testaceous, the antennæ, rostrum, and legs testaceous, the two outer joints of the antennæ slightly infuscate. Head broader than long, about one-half longer than its width between the eyes, the latter moderately large; antennæ with joints 1 and 2 rather stout, 3 and 4 more slender and somewhat fusiform, 2 three times as long as 1 and thickened towards the apex; rostrum not extending beyond the anterior coxæ. Pronotum (along the median line) as long as the head, rounded at the sides, transversely rugulose, the anterior lobe smooth in the middle, the posterior lobe flattened on the disc, the base very deeply emarginate, the anterior angles obtuse and declivous. Scutellum with a broad, deep, transverse, rugulose depression before the apex. Elytra closely, very finely punctate; the embolium broad, at the apex not much narrower than the corium; the membrane with an inner and an outer nervure distinct. Orifice of the metastethium very long, extending outward to the submarginal ridge.

Length $2\frac{1}{3}$ millim. (♂.)

Hab. GUATEMALA, Cerro Zunil 4000 to 5000 feet (*Champion*).—BRAZIL [4], Rio Janeiro [1–3].

Four specimens, the sex of one only of them ascertained. Recognizable by its ovate shape, feebly depressed pronotum, and peculiar coloration. As Stål's type has not been seen by me, a description of the Guatemalan examples is given.

4. **Cardiastethus assimilis.**

Dasypterus assimilis, Reut. Öfv. Vet.-Ak. Förh. 1871, p. 564 [1].

Cardiastethus assimilis, Reut. Monogr. Anthocorid. p. 139 [2] (nec Uhler).

Ovate, shining, the elytra duller, finely pubescent; ochreous or rufo-testaceous, the neck, scutellum, elytra, mesosternum, and in one specimen the anterior lobe of the pronotum also, piceous, the sides of the elytra more or less testaceous; the antennæ testaceous, with the two outer joints and the apex of the second more or less infuscate; the rostrum (the base excepted) and legs testaceous. Head, antennæ, and rostrum as in *C. limbatellus*. Pronotum much narrowed anteriorly, feebly rounded at the sides, the posterior lobe deeply depressed on the disc in front and also faintly rugulose, the base very deeply emarginate. Scutellum and elytra as in *C. limbatellus*. Orifice of the metastethium very long, extending outward to the submarginal ridge.

Length 2–$2\frac{1}{4}$ millim. (♂.)

Hab. NORTH AMERICA, S. Carolina and Texas [1 2]. — GUATEMALA, near the city (*Champion*); PANAMA, Volcan de Chiriqui 4000 to 8000 feet, Peña Blanca 3000 feet (*Champion*).

We possess eight examples of this species from within our limits, two only of them being from Guatemala. Very like *C. limbatellus*, but with the pronotum differently coloured, more narrowed anteriorly, the sides less rounded, the posterior lobe smoother and less depressed on the disc. The description is mainly taken from the Panama specimens, the others being immature or broken. The single example with a dark anterior lobe to the pronotum was obtained at an elevation of 8000 feet in Chiriqui. One of Dr. Reuter's types of *C. assimilis* from S. Carolina has been examined, and it only differs from our specimens in having the elytra paler. The *C. assimilis* of Prof. Uhler's Grenada list (P. Z. S. 1894, p. 201) belongs to a different species.

PORONOTUS.

Poronotus, Reuter, Öfv. Vet.-Ak. Förh. 1871, p. 561; Stål, Hemipt. iii. p. 102.

This genus is dropped by Dr. Reuter in his Monograph. His types were *Xylocoris discifer* and *X. constrictus*, Stål, both from Brazil. The first-mentioned species is referred to *Cardiastethus* in the Monograph, and the second to *Asthenidea*. The name *Poronotus* is here retained for the latter, the type of which, as well as a second specimen from Mexico, I have examined. This insect, incorrectly treated by Dr. Reuter as synonymous with his *Asthenidea pallescens*, is closely related to *Cardiastethus*. The pronotum is very deeply emarginate at the base; the deep transverse sulcus between the anterior and posterior lobes extends completely across (it is not limited to the disc, as in *Cardiastethus*); the posterior lobe is sulcate down the middle in front; the anterior lobe is short and convex, and in front of it there is a very distinct collar. The scutellum (as in *Cardiastethus*) has a broad, deep, transverse sulcus across the middle. The elytra are finely pubescent, with the clavus exceedingly coarsely punctured and the other parts almost smooth; the embolium at the apex is as broad as the corium. The wings are without a hamus in the cell. The metasternum is short; the orifice of the metastethium is long and curved backward.

1. Poronotus constrictus.

Xylocoris constrictus, Stål, Rio Jan. Hemipt. i. p. 44[1].
Poronotus constrictus, Reut. Öfv. Vet.-Ak. Förh. 1871, p. 562[2]; Stål, Enum. Hemipt. iii. p. 102[3].
Asthenidea constricta, Reut. Monogr. Anthocorid. p. 193[4].

Hab. Mexico, Orizaba (*Bilimek, in Mus. Vind. Cæs.*).—Brazil, Rio Janeiro[1–4], Bahia[3 4].

There is a single specimen of this species from Orizaba in the Vienna Museum, labelled as having been named by Dr. Reuter; it agrees well with Stål's type.

SOLENONOTUS.

Solenonotus, Reuter, Öfv. Vet.-Ak. Förh. 1871, p. 599; Monogr. Anthocorid. pp. 114, 149; Stål, Enum. Hemipt. iii. p. 101.

Dr. Reuter included a single species from Tropical America in this genus, his type of which had the third and fourth antennal joints broken off. This species and two others occur within our limits. They have the antennæ formed as in *Piezostethus*, &c., the two outer joints being much more slender than the others and clothed with long projecting hairs. *Solenonotus* is a near ally of the Palæarctic genus *Xylocoris*. The three species may be separated thus:—

Elytra black or fuscous, with the shoulders distinctly ochreous.
  Body ovate: length 3 millim. . . . . *sulcifer*, Stål.
  Body oblong, narrow: length not more than 2 millim. . . . . *canaliculatus*, n. sp.
Elytra pale testaceous, with the embolium and cuneus more or less black: body ovate: length 2–2¼ millim. . . . . *nigromarginatus*, n. sp.

1. **Solenonotus sulcifer.** (Tab. XIX. fig. 30.)

Anthocoris (?) *sulcifer*, Stål, Rio Jan. Hemipt. i. p. 43 [1].

Solenonotus sulcifer, Reut. Öfv. Vet.-Ak. Förh. 1871, p. 559, t. 7. fig. 3 [2]; Monogr. Anthocorid. p. 150 [3]; Stål, Enum. Hemipt. iii. p. 101 [4].

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).—Colombia, Antioquia [3]; Brazil, Rio Janeiro [1–4].

Three specimens. These nearly agree with Reuter's var. β, from Antioquia, the type of which is now before me: they have the hind tibiæ piceous, except at the base and apex, and the other tibiæ entirely testaceous. The shoulders of the elytra are ochreous.

2. **Solenonotus canaliculatus,** n. sp.

Narrow, shining, depressed, the flattened apical portion of the scutellum and the elytra subopaque; finely pubescent, and also clothed with a few scattered long erect hairs, the abdomen with several very long bristly hairs at the apex; piceous, the elytra piceous or fusco-testaceous, with the shoulders ochreous, and the outer portions of the embolium and cuneus thence to the apex black; the antennæ, rostrum, and legs testaceous, the femora slightly darker. Head nearly as long as broad, the eyes small; antennæ as in *S. nigromarginatus*. Pronotum trapezoidal, very short, deeply sulcate down the middle, and obsoletely margined at the sides, the anterior lobe almost smooth, the posterior lobe depressed on the disc and transversely rugulose. Elytra almost smooth. Orifice of the metastethium curving forward externally. Legs rather short, the femora incrassate, the anterior and posterior pairs very stout.
Length 1¾–2 millim. (♂ ♀.)

Hab. Guatemala, Pantaleon (*Champion*); Panama, Bugaba, San Feliz (*Champion*).

Four specimens. Closely allied to *S. nigromarginatus*, but smaller and narrower, the eyes smaller, the corium and clavus much darker, the pronotum more deeply sulcate down the middle, the femora paler.

3. **Solenonotus nigromarginatus,** n. sp. (Tab. XIX. fig. 31.)

Rather broad, shining, depressed, the flattened apical portion of the scutellum opaque and the elytra dull; finely pubescent and also clothed with a few long erect hairs, the abdomen with several very long bristly hairs at the apex; piceous, the elytra testaceous or stramineous, with the cuneus and embolium to a greater or less extent black, and the membrane hyaline or flavo-hyaline; the antennæ, rostrum, and legs testaceous, the femora piceous or fuscous. Head considerably broader than long, smooth, the eyes rather large; antennæ moderately long, joints 1 and 2 stout, 3 and 4 very slender, 2–4 nearly equal in length, 2 thickened outwards and about three times as long as 1; rostrum extending to a little beyond the anterior coxæ. Pronotum trapezoidal, short, somewhat deeply emarginate at the base and very finely and obsoletely margined at the sides, more or less distinctly sulcate down the middle of the anterior lobe, the latter almost smooth, the posterior lobe depressed on the disc and transversely rugulose. Elytra almost smooth. Orifice of the metastethium long, curved forward externally, and reaching to near the outer edge of the metastethium. Legs rather short, the femora incrassate, the anterior and posterior pairs very stout.

Length 2–2¼ millim. (♂ ♀.)

Hab. GUATEMALA, El Reposo, Las Mercedes, Pantaleon (*Champion*); PANAMA, Bugaba (*Champion*).

Numerous examples, all from the Pacific slope. This insect has very much the facies of a *Piezostethus*, the antennæ being formed as in that genus, but the wings are destitute of the hamus in the cell.

SCOLOPOSCELIS.

Scoloposcelis, Fieber, Wien. ent. Monatschr. vii. p. 61 (1863); Stål, Enum. Hemipt. iii. p. 101; Reuter, Monogr. Anthocorid. pp. 114, 151.

Dr. Reuter includes this genus in his division Xylocoraria, which are without a hamus in the cell of the wings; but in the American species, as well as in one of the European forms, the hamus is often present. Four species are known, three of which are Palæarctic.

1. **Scoloposcelis flavicornis.** (Tab. XIX. fig. 32, ♀ *.)

Scoloposcelis flavicornis, Reut. Öfv. Vet.-Ak. Förh. 1871, no. 5, p. 561[1]; Monogr. Anthocorid. p. 154[2].

Hab. NORTH AMERICA, Texas [1] [2].—GUATEMALA, San Gerónimo (*Champion*).

Four specimens, agreeing with the Texan type now before me.

Fam. CERATOCOMBIDÆ.

Of this family a single species only is known to me from Central America. None appear to have been recorded as yet from within the limits of the United States. Nine species, belonging to six genera, have been noticed by Prof. Uhler from the Antillean islands of Grenada and St. Vincent, and it is therefore probable that others will eventually be found on the Isthmus of Panama.

* The insect is narrower than represented by our artist.

CERATOCOMBUS.

Ceratocombus, Signoret, Ann. Soc. Ent. Fr. (4) x. p. 542 (1852); Fieber, Europ. Hemipt. pp. 39, 142; Reuter, Monogr. Ceratocomb. in Act. Soc. Fenn. xix. no. 6, p. 4 (1891).
Lichenobia, Baerensprung, Berl. ent. Zeitschr. i. p. 165 (1857).

A widely distributed genus including eight described species. One from Panama is now added.

1. **Ceratocombus panamensis,** n. sp.

Macropterous form. Narrow, obovate, dull, piceous, the elytra uniformly fuscous, the wings hyaline and iridescent, the legs, antennæ, and rostrum testaceous; the head, pronotum, and abdomen clothed with a few long erect bristly hairs, the tibiæ setose, the two outer joints of the antennæ clothed with very long fine projecting hairs. Antennæ moderately long; joints 3 and 4 very slender, elongate, and about equal in length. Pronotum narrower in front than the head (with the eyes), the sides (as viewed from above) straight, and rapidly converging from the base forward, the disc finely canaliculate down the middle. Elytral neuration as in *C. brasiliensis*, Reut.
Length nearly 2 millim.

Hab. PANAMA, Bugaba (*Champion*).

Two specimens. Closely allied to *C. minutus*, Uhler, from St. Vincent and Grenada, but larger and more elongate, the elytra longer (in the developed forms), the pronotum with the sides straighter. *C. minutus* appears to be a common insect in some of the Antillean Islands. In the elytral neuration the present insect agrees with Dr. Reuter's figure of *C. brasiliensis* (Monogr. Ceratocomb. tab. fig. 3 *a*).

Fam. CIMICIDÆ.

This family, as at present restricted, includes only the bed-bug and its allies.

CIMEX.

Cimex, section *a,* Linnæus, Syst. Nat. ed. 10, i. p. 441 (1758); Stål, Enum. Hemipt. iii. p. 104.

It is unnecessary to give here either the full synonymy of this genus or of the single species included by Linnæus in his section "*a*" of *Cimex*, viz. *C. lectularius*, the bed-bug *. The other species attack birds, bats, &c.

1. **Cimex lectularius.**

Cimex lectularius, Linn. Syst. Nat. ed. 10, i. p. 441[1]; Stål, Enum. Hemipt. iii. p. 104[2]; Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 278[3]; Marlatt, Bull. U.S. Dep. Agric. (Div. Ent.), new ser. no. 4, pp. 32–38, figg. 7, 8, 9 (1896)[4].
Acanthia lectularia, Uhler, P. Z. S. 1894, p. 202[5].

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* See Lethierry and Severin, Cat. Gén. Hémipt. Hétéropt. iii. p. 235.

Hab. North America [3 4], Lower California [3].—Mexico [3]; Panama, Bugaba (*Champion*).—South America to Valparaiso [2]; Antilles, Grenada [5], St. Vincent.—Europe [1], Asia, Madeira, S. Africa, &c.

This universal pest was observed by me in various places in Central America, but only a single specimen was preserved. It appears to follow man everywhere in his wanderings.

HÆMATOSIPHON, n. gen.

Head very broad, short, sunk into the pronotum up to the eyes, the latter finely faceted and moderately prominent; rostrum extending to the middle of the posterior coxæ, and received into a narrow groove between the coxæ. Pronotum truncate at the base and apex, with the explanate margins narrow and of equal width throughout, the anterior angles very slightly produced forwards. Elytra not longer than the median portion of the first dorsal abdominal segment, separately rounded behind, and with the outer margins strongly reflexed. Abdomen in both sexes with the first dorsal suture straight, the following sutures, as well as all the ventral ones, becoming more and more sinuous posteriorly. Coxæ subcontiguous; the intermediate pair separated by a thin lamella only, the posterior pair by a narrow prolongation of the raised intercoxal process of the abdomen, the latter widening posteriorly and extending as far as the apex of the fourth ventral segment. Tarsal claws very slender, simple. Genital segments of the male asymmetrically formed. Fourth ventral segment in the female unemarginate on the left side at the apex. The other characters as in *Cimex*.

As the late A. Dugès anticipated, the insect described by him under the name *Acanthia inodora* cannot be retained in the same genus with *Cimex lectularius*, Linn. The very long rostrum, the deeply inserted head, the subcontiguous intermediate and hind coxæ, the form of the pronotum, and also that of the abdomen, the laterally margined elytra, &c., separate it at once from *C. lectularius* and its allies.

The single known species infests poultry, and it appears to be a troublesome pest wherever it occurs. Dugès states that *H. inodora* is without an odoriferous apparatus, but this is a mistake.

1. **Hæmatosiphon inodora.** (Tab. XX. figg. 1, 1 *a*, ♂.)

Acanthia inodora, A. Dugès, La Naturaleza, (2) ii. p. 169, t. 8. figg. 1–7 (1892) [1]; Townsend, Proc. Ent. Soc. Wash. iii. p. 40 [2].

Hab. North America, New Mexico [2], W. Texas [2].—Mexico, Guanajuato [1] (*Dugès*).

According to Prof. Townsend [2], who describes the nymph, this insect is known in New Mexico by the name of "coruco." He states that "when the insect once gains access to a hen-house, it soon swarms in great numbers, infesting the inmates and roosts, and covering the eggs with its excrementa, which show as black specks. It is a very difficult pest to exterminate, and has frequently been known to spread from roosts to dwelling-houses, where it proves more formidable than the bed-bug." Dr. E. Dugès has been kind enough to send us specimens of both sexes of the species from Guanajuato.

Fam. SALDIDÆ.

SALDA.

Acanthia, Fabricius, Syst. Ent. p. 693 (1775); Stål, Enum. Hemipt. iii. p. 148; Reuter, Act. Soc. Fenn. xxi. 2, p. 31. [=*Cimex*, Linn., sect. *a* (1758).]

Salda, Fabricius, Syst. Rhyng. p. 113 (1803); Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 333.

Sciodopterus, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 404 (1843).

This well-known genus includes nearly one hundred described species, few of which are from the New World. The North-American forms, however, are numerous and require revision. Of the ten here enumerated from within our limits, *S. signoreti*, Guér. (=*ornata*, Stål), is the only one inhabiting the sea-coast, where fresh species are certain to be discovered, the others being from the banks of ponds or streams. Following Dr. Reuter's system of arrangement, *S. signoreti* should form the type of a new subgenus near *Chiloxanthus*, the other Central-American forms belonging to his section *Acanthia*.

a. Species large and elongate (length 6½–7 millim.), with a very long second joint to the antennæ, which are entirely pale; upper surface dull and simply pubescent; pronotum and elytra more or less variegated with whitish; membrane with five areolæ . . *signoreti*, Guér. (*ornata*, Stål).

b. Species small (length 2½–5 millim.), ovate or oblong-ovate in shape; membrane with four areolæ.

a'. Upper surface with long, erect hairs, and a more or less distinct short decumbent pubescence.

a''. Head, pronotum, and scutellum very shining; the lateral margins of the pronotum black.

a'''. Elytra shining throughout . . . . . *lævis*, n. sp.

b'''. Corium shining, the clavus (except along the suture) opaque; the sides of the pronotum straight and rapidly converging from the base forwards . . . . . *sulcicollis*, n. sp.

c'''. Elytra opaque; the pronotum much dilated at the sides: form short ovate . . . . . *opacipennis*, n. sp.

b''. Head, except in front, pronotum, and scutellum slightly shining, the elytra opaque; the lateral margins of the pronotum flavous. *comata*, n. sp.

b'. Upper surface with a short decumbent pubescence only.

c''. Lateral margins of the pronotum black.

d'''. Pronotum slightly rounded at the sides, comparatively broad in front.

*a*⁴. Elytra with small flavous spots, the pronotum somewhat broadly dilated at the sides . . . . . *saltatoria*, Linn.

*b*⁴. Elytra with the flavous coloration more extended, the pronotum more narrowed in front . . . . . *tropicalis*, n. sp.

e'''. Pronotum with the sides straight, very narrow in front; elytra each with two flavous lateral spots . . . . . *quadrimaculata*, n. sp.

d''. Lateral margins of the pronotum flavous.

f'''. Apical joint of the antennæ annulated with flavous; pronotum very narrow in front . . . . . *ventralis*, Stål.

g'''. Apical joint of the antennæ entirely dark; pronotum a little wider in front . . . . . *abdominalis*, n. sp.

1. **Salda signoreti.** (Tab. XX. fig. 2.)

Salda signoretii, Guér. in Sagra's Hist. fis. polit. y nat. de Cuba, Ins. p. 167, t. 13. fig. 10[1]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 333[2], and in Kingsley's Stand. Nat. Hist. ii. pp. 265, 266, fig. 321[3].

Acanthia signoretii, Stål, Enum. Hemipt. iii. p. 148[4].

Salda ornata, Stål, Stett. ent. Zeit. 1862, p. 458[5].

Acanthia ornata, Stål, Enum. Hemipt. iii. p. 149[6].

Hab. NORTH AMERICA, Georgia (*mus. Holm.*), coasts of Texas, Maryland, and Massachusetts on the southern side of Cape Cod[2].—MEXICO[2 6], deserts of Sonora[3], Vera Cruz[5].—CUBA[1–4].

I have seen six specimens of this peculiar species—one from Georgia, two from Cuba, and three from Mexico (including the type of *S. ornata*). The antennæ are pale and slender, with a very elongate second joint, this being longer than the third and fourth joints united; they are finely pilose, and on the first joint there are a few short black setæ. The ocelli are very narrowly separated. The upper surface of the body is rather dull and finely pubescent. The membrane has five areolæ, the outer one being open externally. The legs are more or less distinctly annulated with blackish; they are finely pilose, the tibiæ armed with short black setæ. According to Prof. Uhler[2 3] this pale-coloured species inhabits white sandy spots near the sea-beach, as well as alkaline deserts and the vicinity of salt springs and lakes. Stål's type of *S. ornata* is figured.

2. **Salda lævis,** n. sp. (Tab. XX. fig. 3.)

Oblong-ovate, very shining, the upper surface somewhat thickly clothed with erect blackish hairs; black, the elytra with two distinct yellowish spots only, both marginal, one near the apex of the corium and the other on the membrane, the latter in great part fuscous, with the apex hyaline; the antennæ testaceous, with the apex of the second joint and the base of the third infuscate, the first joint slightly darkened; the rostrum, coxæ, and legs testaceous, the tibiæ and tarsi faintly annulated with fuscous. Head smooth behind the ocelli, the latter narrowly separated; antennæ elongate, moderately slender, joint 2 nearly twice as long as 3, 3 and 4 subequal in length, all the joints shortly pubescent and also clothed with long, fine, projecting hairs. Pronotum narrowly explanate at the sides and rapidly narrowing forwards; anterior lobe shallowly sulcate down the middle, limited before and behind by a distinct transverse groove, which is impressed with a row of punctures. Scutellum slightly rugulose on the disc anteriorly. Elytra almost smooth, the clavus with a few punctures; membrane with four areolæ. Legs shortly pilose, the tibiæ with scattered setæ.

Length 4–5, breadth 2–2$\frac{1}{5}$ millim. (♂ ♀.)

Hab. GUATEMALA, San Gerónimo (*Champion*).

Three specimens. Very like *S. sulcicollis*, but darker and a little more elongate, the elytra shining throughout and more sparsely pilose, the head smooth behind, the anterior lobe of the pronotum not so deeply sulcate down the middle, the antennæ not so stout.

3. **Salda sulcicollis,** n. sp. (Tab. XX. fig. 4.)

Ovate, very shining, the clavus (except along the suture) opaque; the upper surface thickly clothed with long, erect, blackish hairs, between which a very short, fine, decumbent golden pubescence is visible; black, the elytra with two distinct yellowish or whitish lateral spots, one before the apex of the corium and the other on the membrane, and indications of smaller scattered spots, the membrane fuscous, with pale spots; the antennæ testaceous, with the third and fourth joints, and the apex of the second, more or less infuscate, the fourth sometimes pale at the tip; the rostrum, coxæ, and legs testaceous, the tibiæ and tarsi annulated with fuscous. Head rugulose behind the ocelli, the latter narrowly separated; antennæ long and rather stout, about reaching the apex of the clavus, joint 2 one-half longer than 3, 3 and 4 subequal in length, all the joints shortly pubescent and also clothed with long, fine, projecting hairs. Pronotum very narrow in front, narrowly explanate at the sides, the latter rapidly and obliquely converging from the base forwards; anterior lobe deeply sulcate down the middle, the two callosities thus formed being limited before and behind by a deep transverse groove, which is impressed with a row of punctures. Scutellum and elytra almost smooth, the membrane with four areolæ. Legs shortly pilose, the tibiæ with scattered setæ.

Length $3\frac{1}{2}$–$4\frac{1}{2}$, breadth $1\frac{3}{4}$–$2\frac{1}{4}$ millim. (♂ ♀.)

Hab. Mexico, Omilteme in Guerrero (*H. H. Smith*); Guatemala, Coban, San Joaquin, and San Gerónimo in Vera Paz, Guatemala city, Capetillo, Panajachel (*Champion*); Panama, Volcan de Chiriqui 4000 feet (*Champion*).

Apparently the commonest species of the genus within our limits, and easily recognizable by the almost smooth, shining, hairy upper surface, the clavus only being opaque, and the comparatively stout, elongate antennæ. *S. luctuosa*, Stål, from California, the type of which is before me, has the pronotum much less narrowed in front, the antennæ shorter and more slender, the corium entirely black, &c. *S. andinus*, Dist., from Ecuador, is less elongate, and has the clavus shining, the elytra differently marked, &c.

4. **Salda opacipennis,** n. sp. (Tab. XX. fig. 5.)

Broad ovate, short, very shining, the elytra entirely opaque; the upper surface thickly clothed with long, erect, blackish hairs, between which a very short, scattered, decumbent, golden pubescence is visible; black, the elytra with an elongate testaceous patch at the middle of the corium externally, a transverse pallid mark towards the apex of the latter, and indications of some scattered whitish spots, the membrane fuscous, with pale spots; the antennæ blackish, with the basal joint obscure testaceous; the rostrum, coxæ, and legs testaceous, the tibiæ and tarsi annulated with fuscous. Head smooth behind the ocelli, the latter narrowly separated; antennæ comparatively short, extending very little beyond the hind angles of the pronotum, slender, joint 2 one-half longer than 3, 3 and 4 equal in length. Pronotum almost smooth, very short and broad, broadly explanate at the sides, rapidly narrowing forwards, the margins a little rounded; anterior lobe deeply foveate in the middle and limited behind by a very deep transverse groove. Scutellum and elytra almost smooth, the membrane with four areolæ. Legs pilose, the tibiæ with scattered setæ.

Length $3\frac{1}{2}$, breadth $1\frac{4}{5}$ millim. (♂.)

Hab. Mexico, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

One specimen. This species has the head, pronotum, and scutellum very shining,

and the elytra entirely opaque. In its general shape it is shorter and relatively broader than any of the other Central-American members of the genus. The margins of the pronotum are broadly explanate from the base to the apex.

5. **Salda comata,** n. sp. (Tab. XX. fig. 6.)

Oblong-ovate, opaque, the vertex, pronotum, and scutellum slightly shining, the upper surface somewhat thickly clothed with moderately long, semierect, blackish hairs, between which a short, fine, golden pubescence is visible, the under surface with silvery pubescence; black, the head in front, the lateral margins of the pronotum to near the apex, and a space in front of the anterior coxal cavities, flavous or whitish, the elytra fuscous, the clavus with a pale streak at the apex, and the corium much variegated with lighter colour, especially towards the sides, the membrane pale, with the nervures and some spots in the areolæ fuscous; the antennæ fuscous, with the first and second joints partly flavous; the legs testaceous, the tibiæ and tarsi usually more or less annulated with fuscous, the femora in one specimen lined with black on the lower side. Head, pronotum, and scutellum very finely rugulose; ocelli narrowly separated; antennæ pubescent and sparsely pilose, moderately long, slender, joint 2 one-half longer than 3, 3 and 4 equal in length; pronotum moderately narrowed in front, narrowly explanate at the sides, which are slightly rounded, the anterior lobe with a deep transverse depression in the middle, and separated from the posterior lobe by a transverse groove. Elytra minutely punctured; membrane moderately long, with four elongate areolæ. Legs pilose and pubescent, the tibiæ with scattered setæ.

Length 4–4½, breadth 2 millim. (♂ ♀.)

Hab. MEXICO, Pedregal (*Bilimek, in Mus. Vind. Cæs.*).

There are several specimens of this species in the Vienna Museum, mostly in very bad condition. It is the only hairy Central-American *Salda* known to me that has the lateral margins of the pronotum flavous. The coloration of the elytra is variable.

6. **Salda saltatoria.**

Cimex saltatorius, Linn. Syst. Nat. ed. 10, p. 448 (1758) [1].
Acanthia saltatoria, Stål, Enum. Hemipt. iii. p. 149 [2]; Reuter, Act. Soc. Fenn. xxi. 2, p. 42 [3].
Salda saltatoria, Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 334 [4].

Hab. NORTH AMERICA, British Columbia [4], Canada [3], United States [2 3 4].—GUATEMALA, Quezaltenango 7800 feet (*Champion*).—EUROPE [3]; N. ASIA [3].

A single female specimen from Guatemala seems to belong to this common holarctic species. It has the upper surface somewhat thickly clothed with very short golden pubescence, and the pronotum is perhaps a little more narrowed in front than in the European examples before me. It is unnecessary to quote the full synonymy here, for which see Dr. Reuter's work [3].

7. **Salda tropicalis,** n. sp. (Tab. XX. fig. 7.)

Ovate, slightly shining, the upper surface clothed with a very short, fine, golden, and the under surface with a silvery, pubescence; black, the head flavous in front, the elytra with a short streak at the apex of the clavus and numerous irregular markings on the corium, of which a long streak at the middle of the costal margin and a shorter one before the apex are most conspicuous, testaceous or flavous; the membrane pale, with the nervures, a spot on the costal margin, and some streaks in the areolæ fuscous or black; the antennæ with the base of the first joint and the apex of the second more or less testaceous; the legs

testaceous, the tibiæ and tarsi annulated with fuscous or black. Head, pronotum, and scutellum finely rugulose; ocelli narrowly separated; antennæ pubescent and sparsely pilose, moderately long, slender, joint 3 one-half longer than 2, 3 and 4 equal in length; pronotum much narrowed in front, the lateral margins narrowly explanate and slightly rounded, the anterior lobe with a deep transverse depression in the middle, and separated from the posterior lobe by a deep transverse groove. Elytra minutely punctate; membrane moderately long, with four elongate areolæ. Legs shortly pilose, the tibiæ with strong setæ.
Length $3\frac{1}{2}$–4, breadth $1\frac{2}{3}$–2 millim. (♂ ♀.)

Hab. GUATEMALA, San Gerónimo and Guatemala city (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Seven examples. Very like *S. saltatoria*, but with the yellowish markings on the elytra more extended and the pronotum a little less dilated at the sides in front, this last-mentioned character separating it from *S. pallipes* (Fabr.). *S. tropicalis* also closely resembles *S. opacula*, Zett., but the costal margin of the corium in the latter is uninterruptedly flavous from below the base almost to the apex. In *S. humilis* (Say) the pronotum is more narrowed in front, with the sides straighter, and the elytra are differently coloured.

8. **Salda quadrimaculata,** n. sp. (Tab. XX. fig. 8.)

Ovate, rather short, opaque, the upper surface clothed with a very short, fine, decumbent, golden pubescence; black, the elytra with two transverse flavous spots on the costal area, one below the base and the other just before the apex, the membrane pale, with the nervures and one or two small spots in each areola fuscous; the antennæ fuscous, with the base testaceous; the rostrum and legs testaceous, the tibiæ and tarsi faintly annulated with fuscous. Head, pronotum, and scutellum rugulose; ocelli narrowly separated; antennæ short, slender, finely pubescent, joint 3 a little longer than 2 (4 broken off); pronotum greatly narrowed in front, not dilated at the sides, the anterior lobe raised on the disc and depressed in the centre. Membrane moderately developed, with four long areolæ. Legs finely pubescent, the tibiæ with fine scattered setæ.
Length $2\frac{1}{2}$, breadth $1\frac{1}{3}$ millim. (♀.)

Hab. PANAMA, Peña Blanca 3000 feet (*Champion*).

Two examples. In this minute species the pronotum is not dilated at the sides, and much narrowed in front, and the elytra have two well-defined flavous spots on the costal area, characters separating it from all the other Central-American forms. From the N.-American and Antillean *S. humilis* (Say) it may be known by the differently coloured elytra, the distinctly separated ocelli, and its less elongate shape.

9. **Salda ventralis.** (Tab. XX. figg. 9, 9 *a*.)

Salda ventralis, Stål, Rio Jan. Hemipt. i. p. 81[1].
Acanthia ventralis, Stål, Enum. Hemipt. iii. p. 148[2].

Oblong-ovate, rather narrow, opaque, the pronotum and scutellum slightly shining, the upper surface clothed with a very short, fine, decumbent golden pubescence; black, the head in front, two spots between the eyes, the pronotal margins, except at the base and apex, an oblong spot on the clavus near the base and another near its apex, the costal area of the corium from the base to about the middle, a spot on the disc inside this, two streaks on the costal area at the apex, a small spot at the inner apical angle of the corium, and sometimes the inner half of the apical margin of the latter, flavous or whitish; the membrane pale

with the nervures fuscous or blackish; the antennæ black, with the basal joint to near the tip, and a broad ring on the apical joint, flavous or testaceous, the second joint (as in the type) sometimes obscure testaceous; the venter varying in colour from almost entirely black to flavous with a large black patch on each side of the sixth segment at the base; the pleura with one or two flavous spots near each of the coxal cavities; the rostrum and legs flavo-testaceous, the tarsi and the apices of the tibiæ annulated with fuscous. Head, pronotum, and scutellum very finely rugulose; ocelli narrowly separated; antennæ long and slender, finely pubescent, joints 2 and 3 subequal in length, 4 slightly shorter than 3; pronotum greatly narrowed in front, the sides rapidly and obliquely converging from the base forwards and very narrowly explanate, the anterior lobe occupying almost the entire width, transversely depressed in the middle in front, and separated from the posterior lobe by a very deep transverse groove. Membrane nearly as long as the comparatively short corium, with four long areolæ. Legs finely pubescent, the tibiæ with short, fine, scattered setæ.

Length $2\frac{4}{5}$–3, breadth $1\frac{1}{2}$ millim. (♂ ♀.)

Hab. Guatemala, San Gerónimo (*Champion*); Panama, David and Caldera in Chiriqui (*Champion*).—Brazil, Rio Janeiro [1] [2].

Stål's type of *S. ventralis*, now before me, is in a mutilated condition, and without an apical joint to the antennæ. The five specimens examined from Central America, from which the above description is taken, agree very well with it, except that they have the yellow marks more extended on the corium. There is no trace of maculation on the membrane, the nervures being simply darker. Stål [1] describes the insect as glabrous, but this is a mistake.

10. **Salda abdominalis,** n. sp. (Tab. XX. fig. 10.)

Ovate, opaque, the upper surface clothed with a very short, fine, decumbent golden pubescence; black, the head in front, two spots between the eyes, the pronotal margins, excepting at the base and apex, the costal area of the corium to about the middle and a patch at its apex, each partly or entirely enclosing a spot of the ground-colour, a minute spot at the inner apical angle of the corium and another on its disc, and a faint streak at the base of the clavus and a spot at its apex, flavous or whitish; the membrane pale, with the nervures and some faint spots fuscous; the antennæ fuscous, with the basal joint testaceous; the venter flavous, with a large black patch on each side of the sixth segment at the base; the rostrum, coxæ, and legs flavo-testaceous, the tibiæ and tarsi annulated with fuscous; the pleura with one or two flavous spots near each of the coxal cavities. Head, pronotum, and scutellum distinctly rugulose; ocelli narrowly separated; antennæ finely pubescent, slender, moderately long, joints 2–4 subequal in length; pronotum moderately narrowed in front, the sides obliquely converging forwards and narrowly but conspicuously explanate, the anterior lobe transversely depressed in the middle in front and separated from the posterior lobe by a deep transverse groove. Membrane much shorter than the corium, with four long areolæ. Legs finely pubescent, the tibiæ with fine scattered setæ.

Length 3–$3\frac{1}{4}$, breadth $1\frac{1}{3}$–$1\frac{1}{2}$ millim. (♂ ♀.)

Hab. Guatemala, San Joaquin and San Gerónimo in Vera Paz (*Champion*).

Six specimens. Very like *S. ventralis*, but with the pronotum less narrowed in front and its margins a little more expanded, the apical joint of the antennæ not annulate, the elytra somewhat differently marked.

CRYPTOCERATA.

This second main division of the Rhynchota-Heteroptera includes all those forms in which the antennæ are very short and inserted on the underside of the head, often concealed in grooves or foveæ. With the exception of the species of the first two families, which live on the banks of streams, &c., they are all aquatic. The whole of the preceding families dealt with in this volume, and in Vol. I., belong to the Gymnocerata, Fieb. (=Geocorisæ, Latr.), the remainder to the Cryptocerata, Fieb. (=Hydrocorisæ, Latr.).

Fam. PELOGONIDÆ.

Galgulidæ, subfam. *Pelogonina*, Stål.

PELOGONUS.

Ochterus, Latreille, Gen. Crust. et Ins. iii. p. 142 (1807).

Pelogonus, Latreille, op. cit. iv. p. 384 (1809); Burmeister, Handb. der Ent. ii. 1, p. 202 (1835); Fieber, Gen. Hydroc. p. 14, t. 1 c (1851); Herrich-Schäffer, Wanz. Ins. ix. p. 23, t. 290. figg. A–F; Stål, Enum. Hemipt. v. p. 137.

A widely distributed genus, of which four species* have been described from America, one of them being from within our limits, whence three others are now added. They have very much the general facies of *Salda*. The Central-American forms differ from the Palæarctic *P. marginatus*, Latr., as well as from the North-American *P. americanus*, Uhler, in having the pronotum much narrowed in front. The flavescent markings at the sides of the pronotum show the extent of the expanded semitransparent margins. The tarsi are 2-, 2-, 3-jointed, the basal joint of each being very short. The males have the seventh ventral segment split down the middle, leaving the terminal genital segment exposed, and they are very apt to be mistaken for the opposite sex†. Dr. Bergroth (Bull. Soc. Ent. Fr. 1890, pp. lxvi, cxix) has revived Latreille's first name for this genus, though the author himself changed it, presumably to avoid confusion with his earlier *Ochthera* (Diptera, 1802 ‡). These insects live upon the sandy banks of streams.

a. Anterior angles of the pronotum acute, the lateral angles rounded; face not or obsoletely carinate between the eyes; elytra with a row of four or five well-defined ochreous spots along the outer margin . . . *perbosci*, Guér.

b. Anterior angles of the pronotum obtuse or rounded; elytra, at most, with very small ochreous spots along the outer margin.

a'. Face not carinate between the eyes; lateral angles of the pronotum rounded . . . . . *æneifrons*, n. sp.

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* *P. perbosci*, Guér., from Mexico, *P. americanus*, Uhler, from North America, and *P. victor*, Boliv., and *P. splendidulus*, Mont., from Ecuador.

† Fieber's figure of the male abdomen appears to have been taken from a female, and the same remark applies to *Mononyx*.

‡ Hist. Nat. Crust. et Ins. xiv. p. 391.

b'. Face distinctly carinate between the eyes; lateral angles of the pronotum projecting outwards beyond the elytra.

a''. Lateral angles of the pronotum subacute, the margins rounded; face closely rugulose between the eyes . . . . . *viridifrons*, n. sp.

b''. Lateral angles of the pronotum acute, the margins straight; face almost smooth between the eyes . . . . . *acutangulus*, n. sp.

1. **Pelogonus perbosci.** (Tab. XX. fig. 11, ♀.)

Pelogonus perboscii, Guér. Mag. Zool. 1843, p. 113 [1]; Stål, Enum. Hemipt. v. p. 137 [2].

Pelogonus marginatus, Uhler, P. Z. S. 1893, p. 706 [3]; 1894, p. 222 [4] (nec Latr.) (part.).

Hab. MEXICO, Presidio de Mazatlan (*Forrer*), Vera Cruz (*H. H. Smith*), Campeche [1 2] (*type in mus. nostr.*).—ANTILLES, Cuba [3], Grenada [5], St. Vincent [4].

The type of this insect was obtained by us from the Sallé collection. It is easily separable from the other Central-American species of the genus by the acute anterior angles of the pronotum, and by the series of well-defined ochreous spots along the costal margin of the corium; the ochreous lateral spots on the pronotum are small, triangular in shape, and placed a little behind the anterior angles. The face is sometimes obsoletely carinate between the eyes. The rostrum is black at the base. The four specimens seen from Mexico are all females, measuring from 5–6 millim. in length and 3–3½ millim. in width. The Grenada examples in the British Museum have a ferruginous patch on each side of the pronotum behind the ochreous spot. A specimen from Vera Cruz is figured.

2. **Pelogonus æneifrons,** n. sp. (Tab. XX. figg. 12, ♀; 13, 13*a*, ♂.)

Pelogonus marginatus, Uhler, P. Z. S. 1893, p. 706 [1]; 1894, p. 222 [2] (nec Latr.) (part.).

Broad ovate, black; the head from the ocelli forwards more or less shining and æneous in colour, the rest of the surface opaque; the pronotum with the sides rather broadly, except at the lateral angles, and the basal margin in the middle, the corium usually with from two to four small spots on the outer margin, as well as the outer edge, and often a spot near the inner apical angle, and some marks on the pleura, ochreous; the head, pronotum, and scutellum with the usual irregular bluish-grey markings; the rostrum broadly black at the base, for the rest ochreous; the legs ochreous, in some specimens slightly infuscate; the upper surface with very minute scattered golden scales, the under surface with a bluish-grey pruinosity, the abdomen with bluish-white pubescence. Face densely rugulose, not carinate between the eyes, the latter moderately large. Pronotum, scutellum, and elytra sparsely, indistinctly punctate; pronotum about one-half wider at the base than at the apex, the sides slightly arcuate, the anterior and lateral angles rounded, the latter not projecting beyond the elytra; elytra somewhat rounded at the sides; nervures of the membrane indistinct.

Length 3½–5, breadth 2–2½ millim. (♂ ♀.)

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, San Gerónimo, Guatemala city (*Champion*); PANAMA, Tolé, Peña Blanca, San Feliz (*Champion*). — ANTILLES, Grenada [2], St. Vincent [1].

Apparently a common species in Central America, whence we possess twenty-four specimens. It is very variable in size and colour, some specimens having the disc of the

elytra more or less ferruginous. The ochreous lateral patches on the pronotum often have a short dark marginal streak. Differs from *P. perbosci* (which also is without a well-defined carina between the eyes) in the rounded anterior angles of the pronotum, the larger ochreous patches at its sides, the less distinctly spotted margins of the elytra, and the smaller size; and from the Palæarctic *P. marginatus*, Latr., in the anteriorly narrowed pronotum, the narrower head, the non-carinate face, the black labrum, &c.

3. **Pelogonus viridifrons,** n. sp. (Tab. XX. fig. 14, ♂.)

Broad ovate, black; the head from the ocelli forwards shining and of a brilliant metallic-green colour, the rest of the surface opaque; the labrum and antennæ, the sides of the pronotum narrowly, except at the lateral angles, the outer margin of the corium, the rostrum, some marks on the pleura, and the coxæ, ochreous, the basal margin of the pronotum and the claval suture inclining to ferruginous, the pronotum, scutellum, and elytra also with some irregular bluish-grey markings; the legs infuscate, with the base of the femora ochreous, in one specimen almost entirely ochreous; the upper surface with very minute scattered golden scales, the under surface with a bluish-grey pruinosity, the abdomen and legs with a bluish-white pubescence. Face densely, irregularly rugulose, carinate between the eyes; the latter large, very prominent in the male, less so in the female. Pronotum, scutellum, and elytra sparsely, distinctly punctate: pronotum short, nearly twice as wide at the base as at the apex, the sides somewhat rounded and rapidly converging from the base, the anterior angles completely effaced, the lateral angles subacute and projecting a little beyond the elytra; elytra widening to near the middle; nervures of the membrane indistinct. Fifth ventral segment carinate down the centre in the male.

Length $4\frac{1}{4}$–$5\frac{1}{2}$, breadth $2\frac{1}{2}$–$3\frac{1}{10}$ millim. (♂ ♀.)

Hab. GUATEMALA, Rio Naranjo, San Gerónimo (*Champion*).

A male from Rio Naranjo and a female from San Gerónimo, the latter much the larger of the two, and with the legs almost entirely pale. The ochreous lateral streaks on the pronotum become, as usual, a little wider forwards.

4. **Pelogonus acutangulus,** n. sp. (Tab. XX. figg. 15, 15 *a*, ♀.)

♀. Broad ovate, flattened above, much narrowed behind, black; the head from the ocelli forwards shining, and of a brilliant metallic-green colour in front, changing to cupreous between the eyes, the rest of the surface opaque; the labrum, the two basal joints of the antennæ, the rostrum, the sides of the pronotum narrowly, except at the lateral angles, the outer margin of the corium, some marks on the pleura, and the coxæ, ochreous, the basal margin of the pronotum ferruginous, the elytra with indications of the usual bluish-grey markings; the under surface with a bluish-grey pruinosity, the legs and abdomen with a bluish-white pubescence; the legs infuscate, the femora beneath and at the base ochreous. Head punctured behind the ocelli, the face densely, irregularly rugulose in front, the interocular space carinate down the middle and almost smooth; eyes comparatively small, not prominent. Pronotum, scutellum, and elytra very distinctly punctured; pronotum short, about twice as wide at the base as at the apex, the sides straight, the anterior angles completely effaced, the lateral angles acute and projecting beyond the elytra; elytra narrowing from a little below the base; nervures of the membrane prominent. Legs long and slender.

Length $5\frac{1}{8}$, breadth $2\frac{4}{5}$ millim.

Hab. GUATEMALA, Rio Naranjo (*Champion*).

One specimen, from the banks of the River Naranjo, in the "tierra caliente" of the Pacific coast region. Easily separable from its allies by the acute lateral angles of the pronotum, the almost smooth interocular portion of the head, and the posteriorly narrowed elytra.

Fam. GELASTOCORIDÆ.

Subfam. *GELASTOCORINÆ.*

Galgulidæ, subfam. *Galgulina*, Stål.

GELASTOCORIS.

Galgulus, Latreille, Hist. Nat. Crust. et Ins. iii. p. 253 (1802); Laporte, Essai Class. Hémipt. in Guérin's Mag. Zool. 1832, p. 16; Burmeister, Handb. der Ent. ii. 1, p. 201 (1835); Herrich-Schäffer, Wanz. Ins. v. p. 87, t. 174. figg. A–G, and ix. p. 24, t. 291. fig. A; Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 424; Fieber, Gen. Hydroc. p. 13, t. 1 B; Stål, Enum. Hemipt. v. p. 137 (nomen præocc.).

Gelastocoris, Kirkaldy, Entom. 1897, p. 258.

This well-known genus, the original name for which is, unfortunately, preoccupied in Zoology *, includes various American species. The identification of the Central-American forms has been made from a series of specimens kindly communicated for comparison by M. Montandon, whose monograph of the genus will shortly be published. He recognizes eight species as distinct, six of which occur within our limits, whereas Stål placed all the published names under two only—*G. oculatus* (Fabr.) and *G. nebulosus*, Guér. As M. Montandon possesses a much more varied material, which will be fully described in his forthcoming Monograph, the main characters only of each species are very briefly noted here. The synonymy is given on his authority. In the males the terminal genital segments are asymmetric. In the females the sixth ventral segment is more or less convex along the middle. The antennæ (Tab. XX. fig. 17) have their third joint very short and small, and completely connate with the fourth.

These insects, which have much the appearance of small Batrachians, live gregariously on the sandy banks of streams, and they also have the power of leaping with facility.

1. **Gelastocoris rotundatus.** (Tab. XX. fig. 18, ♀.)

Gelastocoris rotundatus, Mont. in litt.

Hab. Mexico, Pinos Altos in Chihuahua, Rio Mescales (*Buchan-Hepburn*), Rio Papagaio (*H. H. Smith*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Guanajuato (*Dugès, in Mus. Paris.*); Guatemala (*Mus. Hamburg. & coll. Montandon*), Guatemala city (*Champion*).

Of this species we possess about a dozen examples, agreeing with the types communicated by M. Montandon. It is nearly allied to *G. oculatus* (Fabr.), but differs from that insect in having the pronotum broadly rounded at the sides and feebly sinuate

* *Galgulus*, Brisson, 1760 (Aves).

behind the obtuse anterior angles. In one of the specimens from Pinos Altos the entire upper surface is mottled with reddish-brown. *G. rotundatus* will almost certainly be found to inhabit the Southern United States. A spotted example from Guatemala city is figured.

2. **Gelastocoris bufo.** (Tab. XX. figg. 16, ♀, var.; 17, 17 *a*, ♂.)

Galgulus bufo, Herr.-Schäff. Wanz. Ins. v. p. 88, t. 174. fig. 536 [1].

Hab. Mexico (*Mus. Paris.*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Atoyac in Vera Cruz (*H. H. Smith*); Guatemala, San Gerónimo, Guatemala city (*Champion*); Costa Rica, Corrizal, Alajuela (*Orozco, in coll. Montandon*).

Found in numbers by myself in Guatemala. In this insect the sides of the pronotum are straight and obliquely converging from the prominent, rounded lateral angles. The markings are very variable, specimens occasionally occurring with the pronotum broadly bordered with ochreous at the sides (fig. 16), or with the basal margin of that colour. The locality given by Herrich-Schäffer [1] is simply "America."

3. **Gelastocoris oculatus.**

Naucoris oculata, Fabr. Ent. Syst., Suppl. p. 525 [1]; Syst. Rhyng. p. 111 [2].

Galgulus oculatus, Latr. Hist. Nat. Crust. et Ins. iii. p. 254 [3], and xii. p. 287, t. 95. fig. 9 [4]; Laporte, Essai Class. Hémipt. in Guérin's Mag. Zool. 1832, pp. 15, 16, t. 52. figg. 3, 3 *a–d* [5]; Walk. Cat. Hemipt. Heteropt. viii. p. 170 [6]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 336 [7]; in Kingsley's Stand. Nat. Hist. ii. p. 263, fig. 320 [8]; Proc. Calif. Acad. Sci. (2) iv. p. 290 [9]; Stål, Enum. Hemipt. v. p. 137 (part.) [10].

? *Galgulus quadrimaculatus,* Guér. Icon. Règne Anim., Ins. p. 351 [11].

Galgulus pulcher, Stål, Öfv. Vet.-Ak. Förh. 1854, p. 239 [12].

Hab. North America, Lower Canada [8], Vancouver I. [8], Eastern United States [1–4 6–10], Lower California [8 9].—Mexico [6 8 10 12], Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Cuernavaca in Morelos, Atoyac in Vera Cruz (*H. H. Smith*), Isthmus of Tehuantepec (*Sumichrast*); Guatemala, San Joaquin, Guatemala city, Rio Naranjo, Paso Antonio (*Champion*); Honduras [10]; Nicaragua, Greytown (*Janson*); Costa Rica, Buenos Aires, El General (*Pittier, in coll. Montandon*); Panama, Caldera, Bugaba, Tolé, San Feliz (*Champion*).—South America to Brazil [11] and Bolivia [11].

This very widely distributed species, described by Prof. Uhler [8] as "a variously tinted chunk of insect entity," appears to be the commonest member of the genus. It has the pronotum much less constricted at the sides than in *G. variegatus*; the lateral angles are rounded, moderately dilated, and finely crenulate. The general coloration is very variable, specimens (from Texas) occasionally occurring with the sides of the pronotum very broadly and the basal half of the elytra whitish.

4. Gelastocoris flavus.

Galgulus flavus, Guér. Icon. Règne Anim., Ins. p. 351, t. 57. figg. 4, 4 *a–c* [1].

Hab. Costa Rica, Talamanca (*Pittier, in coll. Montandon*); Panama (*Boucard*), David, Tolé (*Champion*), Colon.—South America to Brazil [1], Peru, and Bolivia.

We possess three specimens of this species from within our limits, and two others from Costa Rica belonging to M. Montandon have been seen. It has the pronotum narrower than the elytra, with the sides bisinuate, the lateral angles subtruncate and strongly oblique on their anterior edge. Guérin's figure, it may be noted, represents the base of the pronotum as nearly straight, whereas in our insect it is strongly trisinuate.

5. Gelastocoris vicinus.

Gelastocoris vicinus, Mont. in litt.

Hab. North America, Southern and Western United States.—Mexico (*Sallé, in Mus. Paris.*); Nicaragua, Chontales (*Janson*); Costa Rica, San José (*Pittier*), La Calera de San Ramon, Alajuela (*Orozco*), El Coronel (*Biolley*); Panama, Bugaba, Volcan de Chiriqui, Tolé (*Champion*).—South America to Brazil.

M. Montandon has sent us for examination numerous specimens of this insect from Costa Rica, and also one from Mexico, and we have many others from Nicaragua and Chiriqui agreeing with them. It is very like *G. variegatus*, but has the foliaceous lateral angles of the pronotum more oblique in front (instead of subtransverse) and less coarsely crenate. The pronotum is strongly constricted at the sides behind the anterior angles, the margins being subparallel in front. The general coloration is usually more obscure than in *G. variegatus*. *G. vicinus* is the only species of the genus found by myself at elevations above 2500 feet on the slope of the Volcan de Chiriqui.

6. Gelastocoris variegatus. (Tab. XX. figg. 19, ♀; 20, ♂.)

Galgulus variegatus, Guér. Icon. Règne Anim., Ins. p. 352 [1]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 336 [2]; Proc. Calif. Acad. Sci. (2) iv. p. 290 [3].

Galgulus nebulosus, Stål, Enum. Hemipt. v. p. 137 (nec Guér.) [4].

Hab. North America, Southern and South-western United States [2], Lower California [3]. —Mexico (*Sallé*), Orizaba and San Marcos (*Bilimek, in Mus. Vind. Cæs.*), Atoyac in Vera Cruz (*Schumann*), Teapa in Tabasco (*H. H. Smith*), Campeche (*Perbosc* [1]); Guatemala, Escuintla (*Mus. Vind. Cæs.*), Guatemala city (*Champion*); Costa Rica, Boca Culebra (*R. Montandon*); Panama, Tolé, San Feliz (*Champion*).—Amazons; Argentina; Antilles, Cuba [2].

This is the handsomest species of the genus, the spots on the elytra being well-

defined and often more or less ocellated. The pronotum is subparallel at the sides in front; the lateral angles are foliaceous, very distinctly crenate in front and behind, and transverse or subtransverse along their anterior edge. A fresh specimen from San Feliz is figured; also the underside of a male (Tab. XX. fig. 20), to show the asymmetry of the genital segments in this sex.

Subfam. *MONONYCHINÆ.*

Galgulidæ, subfam. *Mononychina*, Stål.

MONONYX.

Mononyx, Laporte, Essai Class. Hémipt. in Guérin's Mag. Zool. 1832, pp. 15, 16; Burmeister, Handb. der Ent. ii. 1, p. 201 (1835); Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 425; Fieber, Gen. Hydroc. p. 12, t. 1 A; Stål, Berl. ent. Zeitschr. vii. p. 405; Enum. Hemipt. v. p. 138 (nec Brullé); Montandon, Bull. Soc. Bucarest, viii. p. 392 (1899).

? *Nerthra*, Say, Descr. New Spec. Heteropt. Hemipt. N. Am. (New Harmony, Dec. 1831); Complete Writings, i. p. 364.

This peculiar genus includes seventeen described species, seven of which are American, four occurring within our limits. In the imaginal form the short anterior tarsi * are furnished with a simple strong claw only, the true basal joint being completely fused with the tibia, but in the nymph (as in the Australian genus *Matinus*, Stål) two long claws are present. The terminal genital ventral segments of the male, as in *Gelastocoris* (*Galgulus*), are asymmetric. The antennæ are 4-jointed †; the third joint is narrow, barely one-third the length of the fourth, and almost connate with it. These insects live in muddy places on the banks of ponds and streams, and are usually coated with an earthy incrustation, which cannot be easily removed.

a. *Anterior femora widest towards the base.*

1. **Mononyx amplicollis.** (Tab. XX. fig. 26, ♂.)

Mononyx amplicollis, Stål, Öfv. Vet.-Ak. Förh. 1854, p. 239 [1]; Berl. ent. Zeitschr. vii. p. 406 [2]; Enum. Hemipt. v. p. 138 [3]; Mont. Bull. Soc. Bucarest, viii. pp. 395, 400 [4].

Hab. Costa Rica (*Van Patten*), El Coronel (*Biolley, in coll. Montandon* [4]).—Colombia [3 4], Antioquia [1 2]; Venezuela [3 4].

Of this species, which is easily distinguishable by the very broad pronotum, we have a single male from Costa Rica. The basal half of the anterior femora, except on their posterior edge, and the anterior trochanters are ochreous, as noticed by Stål.

* Not the posterior pair, as stated by Laporte.

† Three-jointed according to Laporte, four-jointed according to Herrich-Schäffer. In our fig. 22 *a* the basal joint (as drawn) is partly hidden within the antennal cavity.

2. **Mononyx fuscipes.** (Tab. XX. figg. 21, 21 *a*, *b*, ♀; 22, 22 *a*, *b*, ♂; 23, nymph.)

Mononyx fuscipes, Guér. Rev. Zool. 1843, p. 114 [1]; Stål, Berl. ent. Zeitschr. vii. p. 406 [2]; Enum. Hemipt. v. p. 138 [3]; Mont. Bull. Soc. Bucarest, viii. pp. 395, 400 [4].

Mononyx badius, Herr.-Schäff. Wanz. Ins. ix. p. 27, t. 291. figg. 894 F, G [5]; Stål, Stett. ent. Zeit. 1862, p. 459 [6]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 337 [7].

Mononyx obscurus, Stål, Öfv. Vet.-Ak. Förh. 1854, p. 239 [8].

Mononyx raptorius, Walk. Cat. Hemipt. Heteropt. viii. p. 171 [9]; Uhler, P. Z. S. 1894, p. 223 (nymph) (nec Fabr.) [10].

Hab. North America, California [7].—Mexico [3–8] (*Sallé*), Presidio de Mazatlan (*Forrer*), Tepic (*Schumann*), Amula, Chilpancingo, Cuernavaca, Teapa (*H. H. Smith*), Orizaba (*Sallé* [9], *H. H. Smith*, *F. D. Godman*), Cuesta de Misantla (*M. Trujillo*), Jalapa (*Höge*, *F. D. Godman*), Oaxaca (*Mus. Brit.*[9]), Valladolid and Temax in Yucatan (*Gaumer*); Guatemala [3], San Gerónimo, Purula, Panzos, Teleman, and Chacoj in Vera Paz, Guatemala city, El Reposo (*Champion*); Nicaragua, Mosquito coast [5]; Costa Rica (*Biolley* [4], *Pittier* [4], *Montandon* [4]), Caché (*Rogers*); Panama [7], Bugaba, Volcan de Chiriqui, David, Caldera, Tolé (*Champion*).—Colombia [1 2 4]; Antilles, Grenada [10].

A common insect within our limits. Differs chiefly from *M. nepæformis* in the genital structure: in the male the last segment is small and placed considerably to the left of the longitudinal axis of the body, and the preceding ventral segment is foveate on the right side near the margin; in the female (fig. 21 *a*) the two triangular pieces forming the last segment are broader than long, and the sixth segment is not very deeply emarginate. Four females, from Presidio and Amula, differ from the rest in having the genital segment (fig. 21 *b*) very short; three of them were sent with males and females of *M. fuscipes* from Presidio. We figure a clean female specimen from Guatemala, also some of the details of structure.

The nymph (fig. 23) has been found at Bugaba and Caché, with the imaginal form. It has (as noted above) two long claws to the anterior tarsi; the joints of the intermediate and hind tarsi are fused into one; the third and fourth antennal joints are connate; and the ocelli are absent.

3. **Mononyx nepæformis.** (Tab. XX. figg. 24, ♂, 25, ♀, genital segments.)

Naucoris nepæformis, Fabr. Syst. Ent. p. 693 (1775) [1]; Syst. Rhyng. p. 111 [2].

Mononyx nepæformis, Stål, Hemipt. Fabr. i. p. 134 [3]; Enum. Hemipt. v. p. 138 [4]; Mont. Bull. Soc. Bucarest, viii. pp. 395, 401 [5].

Mononyx raptorius, Burm. Handb. der Ent. ii. 1, p. 201 (1835) [6]; Amyot et Serv. Hist. Nat. Ins. Hémipt. p. 426, t. 8. fig. 4 [7]; Herr.-Schäff. Wanz. Ins. ix. p. 27, t. 291. fig. 895 [8] (nec Fabr.).

Mononyx bipunctatus, Stål, Öfv. Vet.-Ak. Förh. 1854, p. 239 [9]; Berl. ent. Zeitschr. 1863, p. 405 [10].

Hab. Guatemala, Purula, Guatemala city (*Champion*); Costa Rica [5], Alajuela (*Orozco*, *in coll. Montandon*).—Colombia [4]; Guiana [4 5]; Brazil [3–10]; Argentina [5]; Antilles [2 3], Antigua [1].

According to Montandon[5] this species is fairly abundant from Costa Rica southwards to the Argentine Republic, and more southern in its distribution than *M. fuscipes*. Two females from Purula and Guatemala city seem to belong here: they both have the two triangular pieces forming the terminal genital segment greatly developed, and the preceding ventral segment very deeply emarginate. In the specimen from Guatemala city (found in company with both sexes of *M. fuscipes*) the sixth ventral segment (as in a female before me from Colombia) is much swollen at the sides anteriorly. The male has the last genital segment broad, and the preceding segment is not foveate on the right side. Our figures of the genital segments are taken from a Costa Rican male and the Purula female.

b. *Anterior femora angularly dilated at the middle.*

4. **Mononyx raptorius.** (Tab. XX. figg. 27, 27 *a*.)

Naucoris raptoria, Fabr. Syst. Rhyng. p. 111[1].

Mononyx raptorius, Stål, Hemipt. Fabr. i. p. 134[2]; Berl. ent. Zeitschr. vii. p. 405[3]; Enum. Hemipt. v. p. 139[4] (nec Burm., Amyot et Serv., and Herr.-Schäff.); Mont. Bull. Soc. Bucarest, viii. pp. 395, 402[5].

Mononyx fusco-conspersus, Stål, Rio Jan. Hemipt. i. p. 82[6].

Hab. Panama, near the city (*Champion*).—South America[1 2], Guiana[5], Brazil[2–6].

A single specimen only of this species has been seen from within our limits. *M. raptorius* is easily recognizable by the form of the anterior femora, as well as by its small size, &c.

Fam. NEPIDÆ.

CURICTA.

Curicta, Stål, Öfv. Vet.-Ak. Förh. xviii. p. 202 (1861).

Nepoidea, Montandon, Ann. Soc. Ent. Belg. xxxix. p. 476 (1895).

A Tropical-American genus including four described species, two of which occur within our limits. It appears to replace *Nepa** in the warmer parts of the New World. The males have the terminal ventral segment more acutely produced than the females. In *C. volxemi* the anterior tibiæ (as noted by M. Martin) are relatively shorter than in *C. scorpio*.

1. **Curicta scorpio.** (Tab. XXI. figg. 1, 1 *a*, ♂.)

Curicta scorpio, Stål, Öfv. Vet.-Ak. Förh. xviii. p. 203[1]; Stett. ent. Zeit. 1862, p. 462[2].

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* The North-American *Nepa apiculata* (Harris), Uhler, was not noticed by Dr. Ferrari in his Monograph of the genus [Ann. k.-k. Naturhist. Hofmuseum, iii. pp. 161–194 (1888)]. He gives (*loc. cit.* p. 181) *N. kohlii* as from "Mexico??" and "Africa?," but further evidence is required before this species can be included in the Mexican fauna.

Nepa scorpio, Ferrari, Ann. k.-k. Naturh. Hofmus. iii. p. 191 [3].
Nepoidea montandoni, Martin, Bull. Soc. Ent. Fr. 1898, pp. 67, 68, fig. 1 [4].

Hab. MEXICO (*Sallé* [4], *in Mus. Holm.*[1–3]); GUATEMALA, near the city (*Champion*).

Four specimens of this species, including both sexes, were found by myself in Guatemala. Martin's figure [4] agrees exactly with the type of *C. scorpio,* which has been communicated by Dr. Aurivillius. The Mexican insects were both collected by Sallé. Stål's type is figured.

2. Curicta volxemi.

Nepoidea volxemi, Mont. Ann. Soc. Ent. Belg. 1895, pp. 476, 477, fig. 6 [1].

Hab. MEXICO, Santa Cruz * (*Van Volxem, in Mus. Roy. Belg.*[1]).

Differs from *C. scorpio* in the much less constricted pronotum and the relatively shorter anterior tibiæ.

RANATRA.

Ranatra, Fabricius, Ent. Syst. iv. p. 64 (1794); Fieber, Gen. Hydroc. p. 23, t. 3 B (1851).

A very widely distributed genus. The two species recorded from Central America are also found in the United States. The anterior femora are unidentate in *R. fusca,* and bidentate in *R. quadridentata.*

1. Ranatra fusca.

Ranatra fusca, Palis. de Beauv. Ins. Afr. et Amér. p. 235, Hémipt. t. 20. fig. 1 [1]; Walk. Cat. Hemipt. Heteropt. viii. p. 189 [2]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 338 [3]; in Kingsley's Stand. Nat. Hist. ii. p. 254, fig. 317 [4]; Proc. Calif. Acad. Sci. (2) iv. p. 292 [5].

Hab. NORTH AMERICA [2], Texas, Southern States and Atlantic region [3 4], Lower California [5].—MEXICO, Orizaba, Oaxaca (*Sallé, in Mus. Brit.*[2]), Valladolid and Temax in N. Yucatan (*Gaumer*), Tabi in Yucatan (*Godman*); GUATEMALA, near the city (*Champion*); PANAMA, Volcan de Chiriqui 4000 feet (*Champion*).

Central-American specimens do not differ from others from Florida, &c., in the British Museum.

This insect differs from the European *R. linearis* in having the pronotum more elongate, and the meso- and metasternum differently formed: the intercoxal portion of the mesosternum is much broader; the metasternum is convex along the middle, and produced posteriorly so as to nearly cover the intercoxal portion of the abdomen, and grooved on each side between them (in *R. linearis* the metasternum is flattened in the middle and not produced between the coxæ, the intercoxal process of the abdomen

* There are upwards of thirty places of this name in Mexico, so it is quite uncertain which is meant.

thus being fully exposed). In the form of the metasternum *R. fusca* approaches *R.* (*Amphischizops*) *compressicollis*, Mont., from Venezuela.

2. Ranatra quadridentata.

Ranatra quadridentata, Stål, Öfv. Vet.-Ak. Förh. xviii. p. 204 (1861)[1]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 338[2]; in Kingsley's Stand. Nat. Hist. ii. p. 255[3]; Proc. Calif. Acad. Sci. (2) iv. p. 292[4].

Hab. North America, Upper[2] and Lower California[4], Illinois[2], Arizona[2].—Mexico[2] (*Mus. Holm.*[1]), Sonora[3].

Unknown to me.

Fam. NAUCORIDÆ.

This is the last family dealt with by Stål in the fifth part of his 'Enumeratio Hemipterorum,' published in 1876. During recent years very many American species have been described by Montandon, chiefly from material contained in the Stockholm, Vienna, Paris, and Hamburg Museums, as well as from a certain number in his own collection. We possess, unfortunately, very few Naucoridæ from Central America, nine species only being represented in our collection. Various types, however, have been lent us, so that we are enabled to figure most of the known forms. The sexual characters are important in some cases, as in *Pelocoris*, these insects having the terminal abdominal segments very differently formed in the two sexes. None of the Naucoridæ, so far as I am aware, carry their eggs about on their backs, a common habit with many of the Belostomidæ. Some of the species live in stagnant, others in running water.

Subfam. *CRYPHOCRICINÆ*.

CRYPHOCRICUS.

Cryphocricos, Signoret, Rev. et Mag. Zool. 1850, p. 290.

Cryptocricus, Stål, Enum. Hemipt. v. pp. 141, 143; Montandon, Verh. zool.-bot. Ges. Wien, 1897, pp. 6, 7.

The type of this genus, *C. barozzi*, Sign., from Brazil *, is a brachypterous insect, with very peculiarly formed abdominal segments in the male. *C. macrocephalus*, if correctly identified by me, differs in many respects, and should probably form the type of a new genus, when the male is discovered. In the form of the legs it approaches the Belostomidæ.

* Montandon, who has redescribed it (Verh. zool.-bot. Ges. Wien, 1897, p. 7), gives "Chili" as the locality.

1. **Cryphocricus macrocephalus.** (Tab. XXI. figg. 2, 2 *a*, ♀ ; 2 *b*, antenna.)

Cryphocricus macrocephalus, Mont. Bull. Mus. Paris, 1897, p. 124[1].

Hab. MEXICO, Cuernavaca in Morelos (*H. H. Smith*); GUATEMALA, Alta Vera Paz (*Bocourt, in Mus. Paris.*[1]).

Of this curious species we have received a single female example from Mexico. The type appears to be of the same sex.

AMBRYSUS.

Ambrysus, Stål, Stett. ent. Zeit. 1862, p. 459; Hemipt. Afric. iii. p. 174; Enum. Hemipt. v. pp. 141, 143; Montandon, Verh. zool.-bot. Ges. Wien, 1897, pp. 6, 11; Bull. Mus. Paris, 1897, pp. 129, 130.

An American genus, including eighteen described species, no fewer than ten of which are from within our limits. Five only are represented in our collection, and three of these by single specimens. The sexual characters are similar to those of *Limnocoris*. *Ambrysus* is nearly allied to that genus, from which it chiefly differs in having the interocular portion of the head narrowing forwards (instead of backwards), and in the absence of the meso- and metasternal elevations, the various species no doubt living in more stagnant waters. The pronotum is deeply excavate in front for the reception of the head in both *Ambrysus* and *Limnocoris*, a character separating these genera at once from *Pelocoris*. *Naucoris profunda*, Say *, the type of which was taken by Bennett in Mexico, probably belongs to this genus (and not to *Limnocoris*, as supposed by Stål); it cannot be identified with certainty from the description. Montandon has fully tabulated all the species of *Ambrysus* in the above-quoted papers.

1. **Ambrysus geayi.**

Ambrysus geayi, Mont. Bull. Mus. Paris, 1897, pp. 128, 130[1].

Hab. PANAMA, Darien (*Geay, in Mus. Paris.*[1]).

This species is a close ally of *A. oblongulus*, from which it is stated to differ in having the posterior angles of the pronotum more truncated and the anterior angles more acute, the posterior angles of the connexival segments more produced, the scutellum dark at the apex, &c.

2. **Ambrysus oblongulus.** (Tab. XXI. fig. 3, ♂.)

Ambrysus oblongulus, Mont. Verh. zool.-bot. Ges. Wien, 1897, pp. 11, 14[1].

Hab. COSTA RICA, Talamanca (*Bovallius, in Mus. Holm.*[1]); PANAMA, Taboga I. (*Champion*).

* Descr. n. sp. Heteropt. Hemipt. N. Am. (New Harmony, Dec. 1831); Complete Writings, i. p. 363.

In this insect the head is very deeply sunk into the pronotum, the margins of the latter are faintly crenulated (when seen under a strong lens), and the surface of the head and pronotum is finely and densely granulated. The type, communicated by Dr Aurivillius, is a female. The two specimens (♂ and ♀) found by myself on the Island of Taboga are a little smaller. The posterior angles of the connexival segments 3–5 are acute in both sexes. The body is much flattened, as in *A. geayi*.

3. **Ambrysus pulchellus.** (Tab. XXI. figg. 4, ♂ ; 4 *a*, antenna.)

Ambrysus pulchellus, Mont. Verh. zool.-bot. Ges. Wien, 1897, pp. 11, 16 [1].

Hab. GUATEMALA (*Mus. Hamburg.*[1]), Paso Antonio, San Gerónimo, Guatemala city (*Champion*).

Of this species we possess six specimens, including both sexes. The males differ from the females in having the posterior angles of the fourth and fifth connexival segments more acute and somewhat produced. These examples differ from the description in having a few fine scattered punctures towards the anterior angles of the pronotum, and the disc slightly depressed and finely, transversely wrinkled.

From *A. pudicus*, Stål, it may be known by its more oblong shape and the much broader head.

4. **Ambrysus pudicus.** (Tab. XXI. fig. 5, ♂ .)

Ambrysus pudicus, Stål, Stett. ent. Zeit. 1862, p. 460 [1] ; Enum. Hemipt. v. p. 143 [2] ; Mont. Verh. zool.-bot. Ges. Wien, 1897, pp. 12, 17 [3].

? *Ambrysus pudicus*, Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 291 [4].

Hab. NORTH AMERICA, Upper and Lower California [4].—MEXICO [1–3] (*Mus. Holm. & Mus. Vind. Cæs.*).

A male from the Stockholm Museum is figured.

5. **Ambrysus parviceps.** (Tab. XXI. fig. 6, ♀ .)

Ambrysus parviceps, Mont. Verh. zool.-bot. Ges. Wien, 1897, pp. 12, 17 [1].

Hab. MEXICO (*Mus. Vind. Cæs.*[1], *Sallé*).

We have a single example of this species, a female, like the type, which is now before me. Both have some scattered rather coarse punctures on the pronotum towards the sides and the disc transversely wrinkled in the centre in front.

A. parviceps differs from *A. pudicus* in the relatively narrower interocular portion of the head, the rounded and more dilated sides of the pronotum, and the acuminately produced posterior angles of the connexival segments. The type is figured.

6. **Ambrysus melanopterus.** (Tab. XXI. fig. 7, ♂.)

Ambrysus melanopterus, Stål, Stett. ent. Zeit. 1862, p. 460[1]; Enum. Hemipt. v. p. 143[2]; Mont. Verh. zool.-bot. Ges. Wien, 1897, pp. 12, 19[3].

Hab. Mexico [1–3] (*Mus. Vind. Cæs.*).

The type is figured. Distinguishable by its oblong, somewhat parallel shape (approaching *A. oblongulus* in this respect), large size, and dark coloration, the posterior angles of the fifth connexival segment only produced.

7. **Ambrysus mexicanus.** (Tab. XXI. fig. 8, ♀.)

Ambrysus mexicanus, Mont. Verh. zool.-bot. Ges. Wien, 1897, pp. 13, 21[1].

Hab. Mexico (*Boucard, in Mus. Holm.*[1]; *Bilimek, in Mus. Vind. Cæs.*[1]).

Very like *A. guttatipennis*, but smaller, smoother, and more narrowed forwards, the embolium less dilated, the posterior angles of the connexival segments less produced. Our figure is taken from one of the types belonging to the Stockholm Museum.

8. **Ambrysus hybridus.** (Tab. XXI. fig. 9, ♂.)

Ambrysus hybrida, Mont. Verh. zool.-bot. Ges. Wien, 1897, pp. 13, 22[1].

Hab. Mexico (*Mus. Vind. Cæs. & coll. Montandon*[1]), Jalapa (*Höge*).

The type of this species belonging to the Vienna Museum is a male, and we possess a female agreeing with it. The posterior angles of the connexival segments are acute and slightly produced (the fifth being rather prominent) in the male, and pointed in the female. In the nearly-allied *A. guttatipennis* the angles are more acuminate. Notwithstanding the difference in colonr (the greenish tint usually changing to brown after death), it is not improbable that Say's unidentified *Naucoris profunda* = *A. hybridus*, Mont.: Bennett collected between Vera Cruz and Jalapa, whence Höge has sent us a specimen of *A. hybridus*.

9. **Ambrysus guttatipennis.** (Tab. XXI. fig. 10, ♀.)

Ambrysus guttatipennis, Stål, Enum. Hemipt. v. p. 143[1]; Mont. Verh. zool.-bot. Ges. Wien, 1897, pp. 13, 22[2].

Hab. Mexico (*Mus. Holm.*[1 2]).

This is the largest of the Central-American species of the genus, and easily distinguishable by the two flavous spots on the corium—one at the middle of the apical margin, the other opposite the inner apical angle of the embolium,—the embolium being, as usual, flavous to near the apex. The type, a female, is figured.

10. **Ambrysus signoreti.** (Tab. XXI. fig. 11, ♂.)

Naucoris poeyi, Amyot et Serv. Hist. Nat. Hémipt. p. 434, t. 8. fig. 5 (nec Guér.) [1].

Ambrysus signoreti, Stål, Stett. ent. Zeit. 1862, p. 460 [2]; Enum. Hemipt. v. p. 143 [3]; Mont. Verh. zool.-bot. Ges. Wien, 1897, pp. 13, 23 [4]; Uhler, in Kingsley's Stand. Nat. Hist. ii. p. 260, fig. 319 [5]; Proc. Calif. Acad. Sci. (2) iv. p. 291 [6].

Hab. NORTH AMERICA, Upper and Lower California [6], Arizona [5 6]. — MEXICO [1–5] (*Mus. Holm. & Vind. Cæs.; Sallé*).

We have a single male example of this insect from Mexico (*Sallé*), without definite locality. It is easily recognizable by its peculiar coloration. The posterior angles of the connexival segments 2–5 are acutely produced. Prof. Uhler [5] states that this species is to be found in the best-watered parts of Arizona and Mexico, dwelling in the quiet waters adjacent to streams and in standing pools, especially such as are grassy.

Subfam. *LIMNOCORINÆ.*

LIMNOCORIS.

Limnocoris, Stål, Rio Jan. Hemipt. i. p. 83 (1860); Hemipt. Afric. iii. p. 175; Enum. Hemipt. v. pp. 142, 145; Montandon, Boll. Mus. Zool. ed Anat. comp. Univ. Torino, xii. no. 297, p. 3; Verh. zool.-bot. Ges. Wien, 1898, p. 414.

Borborocoris, Stål, Ofv. Vet.-Ak. Förh. xviii. p. 202; Enum. Hemipt. v. pp. 142, 146.

This American genus includes eighteen described species, four of which are from within our limits, whence one other is now added, the remainder being from South America. In the males the fifth ventral segment is freely movable, it being divided longitudinally into three pieces, and two genital segments are visible. In the females the fifth ventral segment is entire and one genital segment only is visible. In the new species described below, *L. insularis*, the eyes are not margined at their outer angle and the suture between the clavus and corium is very indistinct. The meso- and metasternal carinæ, as noted by Montandon, are concave and flexible at the summit, so as to enable the insects to cling to stones, &c., in the rapid streams, and they differ in form according to the species. The species of *Limnocoris* are fully tabulated by Montandon in the above-quoted papers.

1. **Limnocoris ståli.** (Tab. XXI. fig. 12, ♀.)

Borborocoris profundus, Stål, Stett. ent. Zeit. 1862, p. 461 [1] (nec Say).

Limnocoris profundus, Stål, Enum. Hemipt. v. p. 145 [2].

Limnocoris ståli, Mont. Boll. Mus. Zool. ed Anat. comp. Univ. Torino, xii. no. 297, p. 4 (1897) [3]; Verh. zool.-bot. Ges. Wien, 1898, p. 415 [4].

Hab. GUATEMALA (*Mus. Vind. Cæs.*[3]).—COLOMBIA [3]; VENEZUELA [2 3]; BOLIVIA [3].

One of the Guatemalan specimens of this species described by Montandon, and

belonging to the Vienna Museum, is figured. It has the posterior angles of the connexival segments 2–5 acutely produced behind. The Mexican insect sent to me from the Stockholm Museum as *L. profundus*, Stål, = *L. signoreti*, Mont.

2. **Limnocoris signoreti.** (Tab. XXI. fig. 13, ♂.)

Limnocoris signoreti, Mont. Boll. Mus. Zool. ed Anat. comp. Univ. Torino, xii. no. 297, p. 5 (1897) [1]; Verh. zool.-bot. Ges. Wien, 1898, p. 416 [2].

Hab. Mexico (*Sallé, in Mus. Holm.; Mus. Vind. Cæs.*[1]).

Of this species I have seen a male belonging to the Stockholm Museum, which is here figured, and a female from the Vienna Museum; the last-mentioned specimen is very dirty and discoloured. The posterior angles of the connexival segments 2–4 are not produced, a character distinguishing this insect at once from *L. ståli*.

3. **Limnocoris inornatus.** (Tab. XXI. fig. 14, ♀.)

Limnocoris inornatus, Mont. Verh. zool.-bot. Ges. Wien, 1898, pp. 417, 423 [1].

Hab. Guatemala (*Mus. Hamburg.*[1]), Paso Antonio (*Champion*).

The single female example referred to this species, from the "tierra caliente" of the Pacific slope, differs from the description in having the clavus and corium irregularly mottled with darker colour, and the connexival segments 3–5 broadly bordered with fuscous in front. The posterior angles of the fifth segment only are acute. The lateral portions of the metasternum are faintly transversely wrinkled. The type was probably discoloured. *L. inornatus* is very like *L. signoreti*, but it is smaller and smoother; the pronotum is scarcely depressed behind the transverse groove, more rounded at the sides, and less narrowed in front; the embolium is more strongly sinuate at the sides posteriorly; and the mesosternal ridge is differently formed.

4. **Limnocoris virescens.** (Tab. XXI. fig. 15, ♂.)

Limnocoris virescens, Mont. Boll. Mus. Zool. ed Anat. comp. Univ. Torino, xii. no. 297, p. 7 (1897) [1]; Verh. zool.-bot. Ges. Wien, 1898, p. 417 [2].

Hab. Costa Rica, Buenos Aires (*Pittier, in coll. Montandon*[1]).

The type of this peculiar species, a male, has been kindly lent by M. Montandon for figuring. The insect is green above, and rounded in outline, with acute posterior angles to the pronotum, the eyes broadly margined at the outer angle, the margins of the elytra deeply sinuate, and the suture between the clavus and corium indistinct. The elytra are without membrane, and there is no trace of wings visible.

5. **Limnocoris insularis,** n. sp. (Tab. XXI. fig. 16, ♀.)

Broad oval, opaque, the basal portion of the pronotum and the elytra pale sordid yellow, dotted with fuscous; the rest of the pronotum, the head, and scutellum sordid ochreous, the membrane fuscous; the underside and legs flavous, the metasternum and abdomen darker. Head broad, with the eyes almost half the width

of the pronotum, about as long as the width of the interocular space at the base, somewhat rounded and abruptly declivous in front, closely, almost imperceptibly, punctate, very faintly transversely grooved on each side just within the anterior margin, the eyes gradually converging posteriorly and not margined behind at the outer angle. Pronotum very short, along the median line slightly longer than the head, about one-third narrower in front than behind, the sides much rounded and converging from a little before the base forwards, the anterior angles rather sharp, the hind angles broadly rounded; the usual transverse groove very faintly indicated laterally, the space behind this not depressed and closely impressed with minute fuscous punctures; the anterior portion of the surface sculptured like that of the head, the disc transversely wrinkled in front, the lateral portions with scattered, rather coarse punctures. Scutellum punctured, the apical portion transversely wrinkled. Elytra with the clavus and corium densely impressed with fine fuscous punctures, the embolium more coarsely and more sparsely punctate; embolium limited inwards by a distinct ridge, the external border strongly rounded, and somewhat abruptly sinuate behind the middle; the suture between the clavus and corium scarcely distinguishable; the claval suture a little more than one-half the length of the scutellum; membrane well developed. Connexival segments not acuminate at the posterior angles. Mesosternal carina acute, deeply notched towards the anterior end, abruptly widened behind and with a rounded, concave space at the top, in the centre of which is a raised point. Metasternal carina oval, sulcate down the middle, and extending forward as a thin plate between the intermediate coxæ. Abdomen with an acute ridge on the second ventral segment extending forward between the hind coxæ.

Length 6, breadth 4 millim. (♀.)

Hab. HONDURAS, Bonacca I. (*Gaumer*).

One specimen. Belongs to Montandon's section EE of the genus, near *L. inornatus*. It has the suture between the clavus and corium very indistinct, and the eyes are not margined behind at their outer angle. The pronotum is more rounded at the lateral angles than in *L. pallescens* (Stål).

Subfam. *NAUCORINÆ*.

PELOCORIS.

Pelocoris, Stål, Enum. Hemipt. v. pp. 142, 144 (1876).

This genus, a close ally of *Ilyocoris* and *Naucoris*, includes about a dozen described species, all American, three of which have been recorded from within our limits, one only extending north of Mexico. The three Central-American forms are all found on the Isthmus of Darien.

1. **Pelocoris femoratus.** (Tab. XXI. figg. 17, 17 *a–d*, ♂.)

Naucoris femoratus, Palis. de Beauv. Ins. Afr. et Amér. p. 237, Hémipt. t. 20. fig. 4[1].

Pelocoris femoratus, Stål, Enum. Ins. v. p. 144[2]; Uhler, in Kingsley's Stand. Nat. Hist. ii. p. 259[3]; P. Z. S. 1894, p. 223[4]; Proc. Calif. Acad. Sci. (2) iv. p. 291[5]; Mont. Bull. Soc. Bucarest, vii. p. 284 (1898)[6].

Naucoris poeyi, Guér. Icon. Règne Anim., Ins. p. 352, t. 57. fig. 5[7].

Var. *Pelocoris biimpressus*, Stål, in litt.[8]; Mont. loc. cit. p. 285[9].

Hab. NORTH AMERICA[8], United States[1 2], Canada to Florida, on both sides of the continent[5]. — MEXICO[5 6] (*Sallé*, *Mus. Holm.*), Temax in N. Yucatan (*Gaumer*); GUATEMALA[6], Paso Antonio, Torola, Guatemala city, Dueñas, San Gerónimo, Paraiso

(*Champion*); Panama, David, Volcan de Chiriqui, Panama city (*Champion*), Matachin (*coll. Distant*), Darien (*Geay* [6]).—Venezuela [8]; Uruguay [6]; Antilles [4 5 8], Cuba [3 7], Grenada, Guadaloupe [4], &c.

A common species within our limits, and varying from 9–11¾ millim. in length. It is quite unrecognizable from Palisot de Beauvois's figure. There are specimens of it from North America in the British Museum, and also others from the Island of Grenada determined by Prof. Uhler. Most of the Central-American examples belong to the var. *biimpressus*, which has a darker scutellum and a dark streak on the embolium; the two forms were found in company at Paso Antonio. The male has the fifth and following abdominal segments freely movable, the fifth being attached to the fourth in the centre only; the fifth and sixth ventral segments are each separated into three pieces, the convex central portion being divided from the lateral pieces by a suture on each side. The long genital segment is divided into two in this sex only. The fourth and fifth connexival segments are more acutely produced at the posterior angles in the male than in the female. An antenna is figured on our Plate (fig. 17 *d*).

2. **Pelocoris nitidus.**

Pelocoris nitidus, Mont. Bull. Soc. Bucarest, vii. p. 286 (1898) [1].

Hab. Panama, Laguna de Pita, Isthmus of Darien (*Dr. Festa* [1]).—Venezuela, Llanos [1]; Brazil, Minas Geraes [1].

Differs from *P. femoratus* in having the narrow basal portion of the pronotum smooth. M. Montandon has lent me one of the types for examination.

3. **Pelocoris binotulatus.**

Naucoris binotulatus, Stål, Rio Jan. Hemipt. i. p. 83 [1].

Pelocoris binotulatus, Stål, Enum. Hemipt. v. p. 144 [2]; Mont. Bull. Soc. Bucarest, vii. p. 286 (1898) [3].

Hab. Panama, Laguna de Pita, Isthmus of Darien (*Dr. Festa* [3]).—Brazil, Rio Janeiro [1–3]; Argentina [3].

Differs from *P. femoratus*, according to Montandon [3], in having the surface of the head and pronotum more densely punctured with brown, the anterior femora also marked with brown.

Fam. **BELOSTOMIDÆ.**

This family includes the largest known forms of Heteroptera, and it is well represented in America, both in the tropical and temperate regions. The Belostomidæ, as a whole, were not dealt with by Stål, but they have been monographed by Mayr

[Verh. zool.-bot. Ges. Wien, xxi. pp. 399–440 (1871)], who, however, does not figure any of them in that work. The species of *Deinostoma* (*Serphus*), *Pedinocoris*, *Zaitha*, *Abedus*, *Belostoma*, &c., carry their eggs about on their backs, glued together in a large flat mass on the elytra, and, according to Miss F. W. Slater (Amer. Nat. 1899, pp. 931–933), this operation is performed by the males only, the females compelling them to undertake the task.

Many of these insects have been attracted to light in large numbers, and the North-American species of *Belostoma* and *Benacus* appear to be known in the United States under the name of "electric light bugs." In Kingsley's 'Standard Natural History,' ii. pp. 255–261 (1884), Prof. Uhler has given an excellent account of the characters and habits of the North-American Belostomidæ, as well as of those of the Naucoridæ, &c. In addition to the species enumerated here, two others have been recorded from Mexico, but further evidence is required before they can be included in our list: these are *Hydrocyrius columbiæ*, Spin. (*cf.* Mayr, Verh. zool.-bot. Ges. Wien, xxi. p. 429), and *Belostoma griseum*, Say (*cf.* Walk. Cat. Heteropt. Hemipt. viii. p. 175).

DEINOSTOMA.

Serphus, Stål, Stett. ent. Zeit. 1862, p. 462; Mayr, Verh. zool.-bot. Ges. Wien, xxi. pp. 401, 403 (1871) (nomen præocc.).

Deinostoma, Kirkaldy, Entom. 1897, p. 258.

This genus is a very close ally of *Pedinocoris* and *Abedus*, differing from the former in having the metasternum keeled, and from the latter by the 3-jointed antennæ and the entirely pubescent ventral surface of the abdomen. The females of all these genera have two small, shallow, piligerous foveæ * immediately before the apex of the sixth ventral segment, which is slightly truncate or feebly emarginate in this sex. The males have the corresponding segment rounded at the apex and without foveæ.

1. **Deinostoma dilatatum.** (Tab. XXI. figg. 18, ♀; 18 *a*, antenna.)

Belostoma dilatata, Say, Descr. New Spec. Heteropt. Hemipt. N. Am. (New Harmony, Dec. 1831) [1]; Complete Writings, i. p. 366 [2].

Serphus dilatatus, Stål, Stett. ent. Zeit. 1862, p. 462 [3]; Mayr, Verh. zool.-bot. Ges. Wien, xxi. p. 403 [4]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 338 [5]; Proc. Calif. Acad. Sci. (2) iv. p. 292 [6].

Hab. North America, California [5], Lower California [6], Arizona [5].—Mexico [5] (*Mus. Holm.*[3]), Tacubaya and San Bartolo (*Bilimek, in Mus. Vind. Cæs.*[4]), Puebla (*Mus. Vind. Cæs.*), between Vera Cruz and Jalapa (*Bennett* [1 2]).

We have not received a specimen of this insect from within our limits. Two females from Mexico, belonging to the Vienna Museum, have, however, been examined.

* The presence of two small hairy papillæ in this sex has been noticed by Miss F. W. Slater (Amer. Nat. 1899, p. 932) in both *Deinostoma* and *Zaitha*.

ABEDUS.

Abedus, Stål, Stett. ent. Zeit. 1862, p. 461; Mayr, Verh. zool.-bot. Ges. Wien, xxi. pp. 400, 403 (1871).

The known species of this genus all inhabit Central America, one of them extending northward into the Southern United States. Four have been described, this number being here reduced to three. *A. signoreti* is a common insect within our limits. The metasternum is keeled, as in *Deinostoma*. The antennæ are 4-jointed, the second and third very short, and each furnished with a long process, the third and fourth being sometimes fused into one. Montandon [Bull. Soc. Bucarest, ix. nos. 2 and 3, p. 11 (1900)] treats *Serphus* and *Pedinocoris* as synonymous with *Abedus*, chiefly on account of the great similarity in general facies of the species of each of these genera and the difficulty in making out their antennal structure; but for the present it seems preferable to retain them as distinct.

1. **Abedus ovatus.** (Tab. XXI. figg. 19, ♂; 19 *a*, antenna.)

Abedus ovatus, Stål, Stett. ent. Zeit. 1862, p. 461 [1]; Mayr, Verh. zool.-bot. Ges. Wien, xxi. p. 404 [2]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 338 [3]; Proc. Calif. Acad. Sci. (2) iv. p. 291 [4].

Stenoscytus mexicanus, Mayr, Verh. zool.-bot. Ges. Wien, xiii. p. 347, t. 11. figg. 6–10 [5].

Hab. North America, Arizona and Texas [3], Lower California [4].—Mexico [3] (*Mus. Holm.*[1]; *Mus. Vind. Cæs.*[5]; *Sallé*), Xautipa in Guerrero (*H. H. Smith*), Jalapa (*Höge*).

Of this species we have received six specimens from Mexico, including both sexes. The second and third antennal joints have each a moderately long process. We figure a male with the eggs still attached to the elytra.

2. **Abedus breviceps.** (Tab. XXI. figg. 20, ♀; 20 *a*, antenna.)

Abedus breviceps, Stål, Stett. ent. Zeit. 1862, p. 462 [1]; Mayr, Verh. zool.-bot. Ges. Wien, xxi. p. 404 [2].

Hab. Mexico (*Mus. Holm.*[1 2]), Cuernavaca (*Bilimek, in Mus. Vind. Cæs.*[2]).

Very like *A. ovatus*, but with the head less produced in front and the membrane a little more developed. The type, a female, has been lent me by Dr. Aurivillius; it has the elytra less dilated at the sides than in *A. ovatus*, and the antennal processes as long as the apical joint.

3. **Abedus signoreti.** (Tab. XXI. fig. 21, antenna.)

♀. *Abedus signoreti*, Mayr, Verh. zool.-bot. Ges. Wien, xxi. p. 404 [1].

♂. *Abedus vicinus*, Mayr, loc. cit. pp. 404, 405 [2].

Hab. Mexico (*Mus. Holm.*[1]), Jalapa (*Höge*), Oaxaca (*Mus. Holm.*[2]; *Mus. Brit.*); Guatemala (*Mus. Vind. Cæs.*[1]), Zapote, Torola, San Gerónimo, San Joaquin

(*Champion*); Costa Rica (*Sallé, Van Patten; Biolley, in coll. Distant*), Rio Sucio, Caché (*Rogers*); Panama, Volcan de Chiriqui (*Champion*).

With types of *A. signoreti* and *A. vicinus* before me, I am unable to distinguish more than one species. The slight differences mentioned by Mayr are probably sexual *: in the male the lateral portions of the sixth ventral segment (as well as the median) are longer than in the female, and this would account for the somewhat different position of the spiracles.

The longer membrane (which varies a little in development and in the neuration) and the more sparsely pilose median portion of the venter separate *A. signoreti* from both the preceding species. The antennal processes are intermediate in length between those of *A. ovatus* and *A. breviceps*.

PEDINOCORIS.

Pedinocoris, Mayr, Verh. zool.-bot. Ges. Wien, xiii. p. 347 (1863); xxi. pp. 402, 405 (1871).

The two described species of this genus are both from California, one of them being now known to extend southwards into Mexico. The antennæ are 3-jointed, as in *Deinostoma*.

1. **Pedinocoris macronyx.** (Tab. XXI. fig. 22, antenna.)

Pedinocoris macronyx, Mayr, Verh. zool.-bot. Ges. Wien, xiii. p. 350, t. 11. figg. 1–4 [1]; xxi. p. 405 [2]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 338 [3]; Proc. Calif. Ac. Sci. (2) iv. p. 292 [4]; Kirk. Entom. 1898, p. 2 [5].

Hab. North America, California [1 2 3], Lower California [4], Arizona [5].—Mexico, Rio Mescales (*Buchan-Hepburn*), Cuesta de Misantla (*M. Trujillo*), Jalapa (*Höge*).

Of this species we possess six specimens from Mexico. They vary somewhat in the sculpture of the elytra, the single example from the Rio Mescales being more rugose than the others. Mayr [1] originally gave as localities "California and Mexico," but he subsequently stated [2] that the last-mentioned habitat was incorrect.

ZAITHA.

Zaitha, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 430 (1843); Fieber, Gen. Hydroc. p. 20, t. 2 c (1851); Mayr, Verh. zool.-bot. Ges. Wien, xiii. p. 352 (1863), and xxi. p. 406 (1871).
Perthostoma, Leidy, Journ. Acad. Phil. n. s. i. p. 66 (1847).

The species of this genus, which is probably restricted to the New World, are very closely allied and difficult to distinguish; five occur within our limits. The females have the sixth ventral segment more or less truncate at the apex and usually with two small fascicles of hair at the tip. In the males the corresponding segment is rounded or subacuminate at the apex.

* Mayr does not notice the sex of the specimens he described.

1. **Zaitha anura.** (Tab. XXII. fig. 1, ♂.)

Diplonychus anurus, Herr.-Schäff. Wanz. Ins. viii. p. 26, t. 257. fig. 799 [1].
Zaitha anurus, Duf. Ann. Soc. Ent. Fr. 1863, p. 388 [2]; Mayr, Verh. zool.-bot. Ges. Wien, xxi. pp. 408, 412 [3]; Uhler, P. Z. S. 1894, p. 223 [4]; Proc. Calif. Acad. Sci. (2) iv. p. 291 [5].
Zaitha boscii, Herr.-Schäff. Wanz. Ins. ix. p. 36 [6]; Mayr, Verh. zool.-bot. Ges. Wien, xiii. p. 354 [7].
Zaitha stollii, Duf. Ann. Soc. Ent. Fr. 1863, p. 387 [8] (part.).
Zaitha cupreomicans, Stål, Öfv. Vet.-Ak. Förh. 1854, p. 240 [9]; Stett. ent. Zeit. 1862, p. 461 [10].
Zaitha subspinosa, Duf. Ann. Soc. Ent. Fr. 1863, p. 387 [11].

Hab. North America, Florida and South-western States [4], Lower California [5].—Mexico [3 4 9 10] (*Höge*), Presidio de Mazatlan (*Forrer*), Teapa (*H. H. Smith*), Tabi in Yucatan (*Godman*), Temax in N. Yucatan (*Gaumer*); Guatemala, Paso Antonio, Torola (*Champion*); Costa Rica (*Biolley, in coll. Distant*); Panama, David, Volcan de Chiriqui, Panama city (*Champion*).—Guiana [11]; Brazil [1 2 3 8]; Antilles, Cuba [3 4], San Domingo [4 11], Grenada [4].

Of this common and widely distributed American insect we possess seventeen specimens from within our limits, including both sexes. In the single male from David the sixth ventral segment is somewhat acutely produced at the apex. *Z. anura* is the largest Central-American member of the genus. One of Stål's types of *Z. cupreomicans* has been examined.

2. **Zaitha elliptica.** (Tab. XXII. fig. 2, ♂.)

Belostoma ellipticum, Latr. in Humboldt et Bonpland's Obs. Zool. ii. p. 105, t. 39. fig. 4 [1].
Zaitha elliptica, Mayr, Verh. zool.-bot. Ges. Wien, xxi. pp. 408, 415 [2].

Hab. Mexico (*coll. Signoret, in Mus. Vind. Cæs.*[2]).

Very like *Z. anura,* but more narrowed anteriorly. A male from "Mexico" belonging to the Vienna Museum has been examined; this is figured on our Plate. No locality was given by Latreille [1].

3. **Zaitha fusciventris.** (Tab. XXI. figg. 23, ♂; 23 *a*, head.)

Zaitha fusciventris, Duf. Ann. Soc. Ent. Fr. 1863, p. 389 [1]; Mayr, Verh. zool.-bot. Ges. Wien, xxi. pp. 417, 419 [2]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 338 [3]; Proc. Calif. Acad. Sci. (2) iv. p. 291 [4].

Hab. North America, Arizona and California [3], Lower California [4].—Mexico [1 3] (*Mus. Holm.; Mus. Vind. Cæs.*[2]; *Mus. Brit.*).—Mexico, Tabi in Yucatan (*Godman*), Temax in N. Yucatan (*Gaumer*); Guatemala, San Gerónimo, Dueñas, Torola (*Champion*); Honduras (*Mus. Brit.*).

We have three males and five females of this species, and two males belonging to the Vienna Museum (determined by Mayr) have been examined. *Z. fusciventris* is extremely like *Z. minor*, but differs from it in having the head depressed or foveate on

each side between the eyes in front. A Mexican specimen from the Vienna Museum is figured.

4. **Zaitha minor.** (Tab. XXI. figg. 24, 24 *a*, ♂.)

Zaitha minor, Duf. Ann. Soc. Ent. Fr. 1863, p. 391 [1]; Mayr, Verh. zool.-bot. Ges. Wien, xxi. pp. 409, 417 [2] (nec Palis. de Beauv.).

Zaitha aurantiaca, Walk. Cat. Heteropt. Hemipt. viii. p. 179 (part.) [3].

Hab. North America, California (*Mus. Vind. Cæs.*).—Mexico (*Mus. Holm.*[2]; *Sallé*), Villa Lerdo in Durango, Jalapa (*Höge*), Oaxaca (*Sallé, in Mus. Brit.*[3]), San Bartolo (*Bilimek, in Mus. Vind. Cæs.*[2]).—Brazil [1 2].

Of this species we possess two males and three females from Mexico, and I have seen four others belonging to the Vienna Museum, one of these latter being labelled "California." It has the head more regularly convex between the eyes than in *Z. fusciventris*.

5. **Zaitha micantula.** (Tab. XXI. fig. 25, ♂.)

Zaitha micantula, Stål, Rio Jan. Hemipt. i. p. 84 [1]; Mayr, Verh. zool.-bot. Ges. Wien, xxi. pp. 410, 420 [2].

Zaitha zelotypus, F. B. White, Trans. Ent. Soc. Lond. 1879, p. 270 [3].

Zaitha minuscula, Uhler, in Kingsley's Stand. Nat. Hist. ii. p. 258 (1884) [4].

Hab. Guatemala, Paso Antonio, Torola (*Champion*); Honduras (*Mus. Holm.*); Nicaragua [4]; Panama, near the city (*Champion*).—Venezuela; Amazons [3 4]; Brazil [1 2]; Argentina [2].

The numerous specimens from Guatemala and Panama which are here referred to *Z. micantula* are a little smaller than the only South-American specimen of that insect before me. They measure from 11–13 millim. in length, and $5\frac{3}{4}$–$6\frac{1}{4}$ millim. in breadth, in this respect agreeing with the dimensions given by Mayr [2]. *Z. minuscula*, Uhler, seems to belong to the same species: it is described [4] as having "a purplish tint over its olive-brown upper surface; the costal margin pale testaceous; the underside of the body, together with the legs, testaceous, the latter variously banded with brown." Dr. Aurivillius informs me that there are specimens of *Z. micantula*, Stål, from Honduras, in the Stockholm Museum. The present insect is much smaller than any of the other Central-American members of the genus. It resembles *Z. elliptica* in general shape, being considerably narrowed forwards; the head is shaped very much as in *Z. minor*. The number of membrane-nervures varies from 6–9 in specimens from the same locality, showing that no reliance can be placed on one of the chief characters (9 nervures, instead of 8) used by Buchanan-White to distinguish his *Z. zelotypus* [3]. The South-American (Argentine) example (♀) mentioned has the abdomen more pointed at the tip, and the membrane a little more produced, than any of our specimens.

BELOSTOMA.

Belostoma, Latreille, Gen. Crust. et Ins. iii. p. 144 (part.) (1807); Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 427 (1843); Fieber, Gen. Hydroc. p. 21, t. 2 D (1851); Mayr, Verh. zool.-bot. Ges. Wien, xxi. pp. 402, 422 (1871).
Belostomum, Burmeister, Handb. der Ent. ii. 1, p. 195 (1835).
Amorgius, Stål, Hemipt. Afric. iii. p. 179 (1865).

This genus includes about ten species, six of which are American. Three only are known to me from within our limits, but *B. grande* (Fabr.) may yet be found on the Isthmus of Panama, or *B. uhleri*, Mont., or *B. griseum*, Say, in Northern Mexico. They are all of very large size, some specimens of *B. grande* measuring upwards of four inches in length (109 millim.). The sexual characters (as well as those of the allied North-American genus *Benacus*) have been described and figured by Riley (Proc. Ent. Soc. Wash. iii. pp. 83–88, figg. 4, 5); he says that the only external indication of the sexes is, that the last ventral segment of the abdomen is entire in the male, and slightly notched and bimucronate at the apex in the female. *B. colossicum* belongs to Stål's section *Amorgius,* the others to *Belostoma,* s. str.

1. **Belostoma colossicum.** (Tab. XXII. fig. 4, ♂.)

Belostoma collosicum (sic), Stål, Öfv. Vet.-Ak. Förh. xi. p. 240 (1854) [1].
Belostoma colossicum, Stål, Öfv. Vet.-Ak. Förh. xviii. p. 205 [2]; Mayr, Verh. zool.-bot. Ges. Wien, xxi. pp. 423, 425 [3]; Mont. Ann. Soc. Ent. Belg. 1895, pp. 472, 477, fig. 2 [4].

Hab. Mexico (*Mus. Vind. Cæs.*[3 4]), San Juan Bautista in Tabasco (*H. H. Smith*); Honduras [1] (*Hjalmarson, in Mus. Holm.*[2 3]); Costa Rica, San José (*Biolley, in coll. Distant*).

Differs from its allies in the dilated lateral margins of the pronotum. The hind tibiæ have (as in *B. angustipes*) a sharp spine at the inner apical angle beneath. Mr. H. H. Smith has sent us a single male specimen of this species from Tabasco, and Mr. Distant has received a female of it from Mr. Biolley from Costa Rica.

2. **Belostoma annulipes.** (Tab. XXII. figg. 3, 3 *a*, ♂.)

Belostoma annulipes, Herr.-Schäff. Wanz. Ins. viii. p. 28, t. 258. figg. 803, 804 (1848) [1]; Mayr, Verh. zool.-bot. Ges. Wien, xxi. pp. 424, 427 [2]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 337 [3]; Proc. Calif. Acad. Sci. (2) iv. p. 291 [4]; Mont. Ann. Soc. Ent. Belg. 1896, p. 514 [5].
Belostoma ruficeps, Duf. Ann. Soc. Ent. Fr. 1863, p. 382 [6] (excl. var.).
Belostoma signoreti, Duf. loc. cit. p. 382 [7].

Hab. North America, Southern and Western United States [3 4], Lower California [4].—Mexico [3], Presidio de Mazatlan (*Forrer*), Tabi in Yucatan (*Godman*), Temax in Yucatan (*Gaumer*); British Honduras, Cayo (*Blancaneaux*); Guatemala, Torola, El Jicaro in Vera Paz (*Champion*); Nicaragua, Chontales (*Janson*); Costa Rica (*Van*

Patten), San José (*Pittier*[5]; *Biolley, in coll. Distant*); Panama, David, Volcan de Chiriqui (*Champion*). — South America[1 3], Colombia[2], Venezuela[2 7], Guiana[2 5], Brazil[2 6]; Antilles, Cuba[2].

Widely distributed in the warmer parts of Central America, but apparently absent from the central plateau of Mexico, where it is replaced by *B. angustipes*. Very like *B. angustipes*, but with the hind tibiæ much broader and with a blunt flattened tooth at the inner apical angle beneath (fig. 3 *a*).

3. **Belostoma angustipes.** (Tab. XXII. figg. 5, 5 *a*, ♂.)

Belostoma angustipes, Mayr, Verh. zool.-bot. Ges. Wien, xxi. pp. 423, 427[1]; Mont. Ann. Soc. Ent. Belg. 1896, p. 511[2].

Hab. Mexico (*Bilimek, in Mus. Vind. Cæs.*[1]; *Mus. Holm.*[1]; *Dugès*[2]), Mexico city (*Höge, H. H. Smith*).

Mr. H. H. Smith has sent us numerous specimens of this species from the vicinity of the city of Mexico. Bilimek's examples were probably from Tacubaya, not far distant.

Fam. NOTONECTIDÆ.

NOTONECTA.

Notonecta, Linnæus, Syst. Nat. ed. 10, p. 439 (1758); Fieber, Rhynch. p. 48 (1851); Gen. Hydroc. p. 25, t. 3 D (1851); Kirkaldy, Trans. Ent. Soc. Lond. 1897, p. 397.

Several species of this well-known genus inhabit Central America, but one only, *N. mexicana*, is well represented in our collection, few travellers, myself included, having paid much attention to them. They divide up into two groups: one, including *N. mexicana* and *N. montezuma*, with the carina on the fourth or fourth and fifth ventral segments thickened and smooth, and the femora and trochanters vittate with black or piceous beneath; the other, including *N. shooteri*, *N. undulata*, and *N. americana*, with the ventral carina acute and hidden by the swimming-hairs, and the femora and trochanters immaculate beneath.

1. **Notonecta mexicana.** (Tab. XXII. figg. 6, 6 *a–d*, ♂; 7, ♀.)

Notonecta mexicana, Amy. et Serv. Hist. Nat. Ins. Hémipt. p. 453, t. 8. fig. 7 (1843)[1]; Herr.-Schäff. Wanz. Ins. ix. p. 43, t. 294. fig. 903[2]; Walk. Cat. Heteropt. Hemipt. viii. p. 203[3]; Uhler, in Kingsley's Stand. Nat. Hist. ii. p. 252[4]; Check-list Hem.-Het. N. Am. p. 28[5]; Proc. Calif. Acad. Sci. (2) iv. p. 292[6]; Kirk. Trans. Ent. Soc. Lond. 1897, p. 401[7].

Notonecta klugii, Fieb. Rhynch. p. 50 (1851)[8].

? *Notonecta impressa*, Fieb. loc. cit. p. 51[9].

Hab. North America[5], Western United States[7], Arizona[4], Lower California[6].—

Mexico [1 4 7 9] (*Mus. Berol.*[8], *Sallé*), San Luis Potosi (*Dr. Palmer*), Pinos Altos in Chihuahua (*Buchan-Hepburn*), Amula in Guerrero (*H. H. Smith*), Jalapa (*Höge*), Oaxaca (*Sallé, in Mus. Brit.*[3]); Guatemala, near the city (*Champion*); Costa Rica[7], Rio Sucio (*Rogers*); Panama (*Boucard*).—Colombia[7].

A very variable and common insect in Central America. It is easily distinguishable by the very large eyes, which are narrowly separated behind, the blackish vitta on the underside of the femora and trochanters, and the smooth and thickened median carina of the fourth ventral segment. The females have this segment elongate, the apex of the sixth produced into a long process in the middle, and the apex of the fifth also slightly produced in the centre. The males have an additional ventral segment *, the fourth not longer than the sixth, and the seventh narrowly produced and subtruncate at the tip. The specimens from Jalapa (with one exception) and all those from Guatemala southwards have the anterior angles of the pronotum more or less rounded, instead of acute and slightly deflexed, as in the type; but as intermediate forms occur, very little value can be placed on this character. The females, it may be noted, often have the sides of the pronotum more sinuous than the males. Mr. Rogers sent us a large number of specimens of this species from Costa Rica.

One of the types of *N. klugii*, Fieb., belonging to the Berlin Museum, has been examined. We give figures of the ventral segments of both sexes—6 *b* (♂), 7 (♀); also of the genitalia of the male, opened (6 *c*), and of the antenna (6 *d*).

2. **Notonecta montezuma.** (Tab. XXII. figg. 8, 8 *a*, ♂; 9, ♀.)

Notonecta montezuma, Kirk. Trans. Ent. Soc. Lond. 1897, p. 402[1].

Hab. Mexico † (*Coffin, in Mus. Oxon.*[1]).

Very like *N. mexicana*, and agreeing with it in having a dark vitta on the underside of the intermediate and posterior femora and trochanters, but differing from that insect in its much more elongate shape; the eyes also are a little smaller and less convex, the interocular space is more deeply sulcate laterally on the vertex, the ventral carina in both sexes is smooth and thickened down the entire length of the fourth and fifth segments, and there is a smooth space down the centre of the following segment. None of these last-mentioned characters are noticed in the description[1]. The types, ♂ ♀, have been examined. The North-American *N. insulata*, Kirby, said by Prof. Uhler to occur in Mexico, and of which I have seen a specimen determined by Mr. Kirkaldy, is a nearly allied form, with the posterior femora and trochanters also vittate beneath; but it differs from *N. montezuma* in having the eyes less approximate behind and the ventral carina thickened along the fourth segment only.

* Apart from the visible convex genital segment.

† Prof. Poulton informs me that the locality is not "W. Mexico," as stated, the "W" on the label simply indicating that it was a Westwood specimen.

3. **Notonecta shooteri.**

Notonecta shooteri, Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 292 [1]; Kirk. Trans. Ent. Soc. Lond. 1897, p. 406 [2].

Var. *Notonecta melæna*, Kirk. loc. cit. p. 407 [3].

Hab. North America, Lower California [1 2].—Mexico [2 3] (*Sallé*); Guatemala, near the city (*Champion*).—Colombia [2].

Three males before me from Guatemala and Mexico seem to belong to this species. They are more robust than either of the following forms, approaching *N. mexicana*, from which they differ in the less convex and more widely separated eyes, the immaculate underside of the trochanters and femora, &c.

4. **Notonecta undulata.** (Tab. XXII. fig. 10, ♂.)

Notonecta undulata, Say, Descr. N. Sp. Heteropt. Hemipt. N. Am. (New Harmony, Dec. 1831) [1]; Complete Writings, i. p. 368 [2]; Uhler, Bull. U.S. Geol. Surv. (2) v. p. 239, t. 21. fig. 33 (1875) [3]; in Kingsley's Stand. Nat. Hist. ii. p. 252 [4]; Proc. Calif. Acad. Sci. (2) iv. p. 292 [5]; Kirk. Trans. Ent. Soc. Lond. 1897, p. 410 [6].

Notonecta americana, Herr.-Schäff. Wanz. Ins. ix. p. 44, t. 294. fig. 902 [7].

? *Notonecta unifasciata*, Guér. Bull. Soc. Zool. Acclim. iv. p. 581 (1858) [8].

Hab. North America [4], Canada [6], United States [1 2 3 6], Lower California [5].—Mexico [1 2 8], Temax in N. Yucatan (*Gaumer*), Tabi in Yucatan (*Godman*), Jalapa (*Höge*); Guatemala, San Gerónimo, Cubilguitz, Guatemala city (*Champion*).—South America to Patagonia [6]; Antilles, Cuba [6], Jamaica [6], &c.

This appears to be the most widely distributed of the American *Notonectæ*, and Prof. Uhler considers that *N. americana*, Fabr., and *N. variabilis*, Fieb., are probably conspecific with it. The insects here referred to *N. undulata*, most of which are from Yucatan, are smaller and narrower than any of the other Central-American forms known to me, and they have the anterior half of the pronotum so closely rugulose as to appear subopaque; the eyes are flattened, and scarcely more distant behind than in *N. mexicana*; the fourth ventral segment is acutely keeled down the middle; the elytra have an oblique, pale stramineous, humeral patch, sometimes so extended as to leave the apex only of the corium black; the femora and trochanters are immaculate beneath. It is unnecessary to quote the full synonymy here.

5. **Notonecta americana.** (Tab. XXII. fig. 11, ♀.)

Notonecta americana, Fabr. Syst. Ent. p. 690 (1775) [1]; Kirk. Trans. Ent. Soc. Lond. 1897, p. 408 [2].

Hab. Mexico [2], Ciudad in Durango 8100 feet (*Forrer*).—South America, Chili [2], Valdivia [2]; Antilles, Cuba [2].

The three female specimens from N.W. Mexico here referred to *N. americana*, one of which has been determined by Mr. Kirkaldy, differ from the same sex of our

N. undulata in having the eyes more widely separated behind, and flatter, the anterior lobe of the pronotum smoother. With such a limited amount of material, no opinion can be expressed as to its validity as a species. The distribution quoted [2], like that of *N. variabilis*, is far too disconnected to be real.

ANISOPS.

Anisops, Spinola, Essai sur les Hémipt. Hétéropt. p. 58 (1837); Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 453; Fieber, Rhynch. p. 57 (1851); Gen. Hydroc. p. 25, t. 3 D; Herrich-Schäffer, Wanz. Ins. ix. p. 40, t. 294. figg. B–D.

This genus seems to be quite as well represented as *Notonecta* within our limits, five species being here enumerated. These are very nearly allied, and they can, indeed, be separated only by the pronotal structure of the males, this sex being always distinguishable by the angularly dilated lower edge of the basal portion of the anterior tibiæ. The antennæ are 3-jointed (Fieber describes them as 4-jointed, counting the minute basal portion of the third as a true joint), the genus thus differing from *Notonecta*, in which they are 4-jointed; the posterior tarsi are without claws, as in *Notonecta* (Fieber states that there are two claws to all the tarsi). The intermediate femora are received into long deep grooves in the mesosternum, while in *Notonecta* they are free. The ventral carina in the females is not depressed towards the apex, but continued as a prominent ridge to a little beyond the tip of the abdomen, where it terminates in a projecting point: in the males it is depressed and interrupted towards the apex and there becomes much less prominent. All the Central-American forms have the anterior tarsi 2-jointed in both sexes, the vertex not produced in the male, the pronotum and elytra quite smooth and subhyaline, the coloration of the dorsal surface of the body showing through. As in *Notonecta*, little or no value can be attached to the coloration of the upper surface for specific separation.

Of the American species described by Fieber, I have been able to identify only one, and the others are here treated as new. The insects known to North-American entomologists as *A. platycnemis* appear to have been wrongly identified.

a. Pronotum in the ♂ with four depressions, appearing tricarinate in this sex.
  a'. Head (with the large eyes) nearly as wide as the pronotum in the ♂, a little narrower in the ♀.
    a''. Body robust; legs stout; interocular space not very narrow behind: length 7½–9 mm. . . . . *carinatus*, n. sp.
    b''. Body moderately robust; legs comparatively slender; interocular space very narrow behind: length 4½–6 mm. . . . . *pallipes*, F.
  b'. Head (with the moderately large, somewhat flattened eyes) distinctly narrower than the pronotum in both sexes; legs rather slender, and, like the greater part of the body, pale in colour: length 6½ mm. . . . . *albidus*, n. sp.

b. Pronotum almost unimpressed in both sexes.

c'. Pronotum and scutellum nigro-violaceous, the anterior angles of the former broadly white; legs stout: length 7–7¾ mm. . . . . *crassipes*, n. sp.

d'. Pronotum and scutellum pale; legs slender: length 5½–6½ mm. . . . *pallens*, n. sp.

1. **Anisops carinatus**, n. sp. (Tab. XXII. figg. 12, 12 *a*, *b*, ♂.)

? *Anisops platycnemis*, Uhler, in Kingsley's Stand. Nat. Hist. ii. p. 253 (nec Fieb.) [1].

Elongate, robust, smooth, shining; head and pronotum sordid white, the colour of the latter modified by that of the mesonotum showing through; the scutellum usually black in front and rufo-testaceous or testaceous behind, sometimes entirely pale; the elytra sordid white, the colour modified by that of the metanotum and the apex of the abdomen showing through, these parts being usually black and the rest of the upper surface rufo-testaceous or testaceous; the under surface, antennæ, and legs testaceous, the venter black, the terminal segment and some spots on the connexivum excepted, the posterior femora beneath, and sometimes the anterior and intermediate tibiæ externally, each with a dark streak down the middle. Head (with the large eyes) nearly as wide as the pronotum in the male, a little narrower in the female; interocular space not quite twice as wide on the vertex as at the base, considerably narrowed beneath, the vertex sulcate down the middle. Pronotum about as long as the scutellum in the male, slightly shorter in the female; the disc in the male with two broad elongate depressions towards the middle and a very large subtriangular depression on each side, these latter almost enclosing an oblique oval elevation behind, the spaces between the depressions appearing raised and forming three longitudinal ridges. Legs stout, the four anterior tibiæ much widened, the anterior pair in the male angularly dilated on the lower edge at the base beneath, and also wider than in the female.

Length 7½–9, breadth 2¼–2½ millim. (♂ ♀.)

Hab. ? North America, Southern United States [1].—Mexico, Presidio de Mazatlan (*Forrer*), Tamaulipas (*fide Uhler* [1]), Temax in N. Yucatan (*Gaumer*); British Honduras, Rio Hondo (*Blancaneaux*); Guatemala, Paso Antonio, Guatemala city (*Champion*).

Sixteen specimens are referred to this species. It is the largest and most robust of the Central-American forms. The males have the head, with the large eyes, nearly as wide as the pronotum, the latter with four deep depressions on the disc, the spaces between these forming longitudinal ridges. The legs are stout, the four anterior tibiæ broad, the anterior pair much widened in the male. This insect must be very nearly allied to *A. macrophthalmus*, Fieb., from Haiti, and *A. femoralis*, Fieb., from Puerto Rico; but without specimens from those localities before me for comparison, it would not be safe to identify it with either of them *. It is probable that the North-American and Mexican insects referred by Prof. Uhler [1] to *A. platycnemis*, Fieb., really belong here, as well as his *Anisops* sp.? from Lower California [Proc. Calif. Acad. Sci. (2) iv. p. 293 (1894)].

2. **Anisops pallipes.** (Tab. XXII. figg. 13, 13 *a*, ♂.)

Notonecta pallipes, Fabr. Syst. Rhyng. p. 103 (1803) [1].

Anisops pallipes, Stål, Hemipt. Fabr. i. p. 137 [2].

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* Drawings of the unique types of these species have been made for me by Fr. H. v. Zglinicka at the Berlin Museum: both insects have the eyes very large and contiguous behind.

Anisops platycnemis, Fieb. Rhynch. p. 61 [3].

Anisops elegans, Uhler, P. Z. S. 1893, p. 703 (part.) [4].

? *Anisops elegans*, Fieb. Rhynch. p. 61 [5]; Kirk. Boll. Mus. Torino, xiv. no. 347, p. 2, no. 348, p. 1 (1899) [6].

Moderately elongate, rather slender, smooth, shining; head and pronotum sordid white, the latter sometimes black with the anterior portion whitish and the cariniform elevations rufescent; the scutellum black or fuscous, with the apex more or less pale; the elytra varying in tint according to the predominance of the black or testaceous colour beneath, sometimes with several red spots at the humeral angles, appearing entirely whitish in pale specimens; the under surface more or less testaceous, the venter black, with the median carina, the terminal segment, and some spots on the connexivum flavescent; antennæ and legs testaceous, the four anterior tibiæ externally, and the posterior tibiæ beneath, each with a more or less distinct darker streak down the middle, the hind tibiæ and tarsi with blackish hairs. Head (with the eyes) nearly as wide as the pronotum in the male, a little narrower in the female; interocular space narrow, becoming very narrow behind and here sometimes obsoletely carinate in the male, shallowly sulcate on the vertex. Pronotum short, about as long as the scutellum in the male, shorter in the female; the disc in the male with two deep elongate depressions towards the middle and a very large, deep, subtriangular depression on each side, these latter almost enclosing an oblique oval elevation behind, the spaces between the depressions appearing raised and forming three longitudinal ridges. Legs rather slender; the anterior tibiæ in the male angularly dilated on the lower edge at the base, and also considerably widened.

Length $4\frac{1}{2}$–6, breadth $1\frac{1}{2}$–2 millim. (♂ ♀.)

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith*), Temax in N. Yucatan (*Gaumer*); PANAMA, Bugaba, David, Panama city, San Miguel in the Pearl Islands (*Champion*), Laguna de Pita, Darien (*Festa* [6]). — ANTILLES [1 2], Puerto Rico [3], St. Thomas [3], St. Vincent [4].

This is the commonest *Anisops* within our limits, and it has been found in plenty in the Pearl Islands by myself and by Mr. Gaumer in Yucatan. The specimens from Bugaba vary a good deal in size, and they are also blacker than the others; some of the females, too, from David (found with the ordinary males) have the pronotum very short, but all seem to belong to one variable species. The red spots at the humeral angles of the elytra, and those on the disc of the pronotum of the male, are evanescent. The pronotal structure separates it from all the other Central-American species, except *A. carinatus*, which is a larger and much more robust insect, and has the eyes less approximate. The male has larger eyes and deeper lateral depressions on the pronotum than the same sex of *A. albidus*. One of the types, a male, of *A. platycnemis*, Fieb., belonging to the Berlin Museum, has been examined, and there seems to be no reason for treating this as distinct from the Antillean *A. pallipes* (Fabr.). *A. elegans*, Fieb., from "America," to judge from a drawing of the type, and its small size, probably belongs to the same species.

3. **Anisops albidus**, n. sp. (Tab. XXII. fig. 14, ♂.)

Elongate, narrow, rather slender, smooth, shining; sordid white, the scutellum more or less rufo-testaceous, the legs, antennæ, and under surface pale testaceous; the abdomen above testaceous, with transverse black bands, beneath black, with the median carina and some marks on the connexival segments pale testaceous. Head (with the eyes) narrower than the pronotum in both sexes; interocular space about

twice as wide on the vertex as at the base, the vertex sulcate down the middle. Pronotum (along the median line) about as long as the scutellum; the disc in the male with two elongate deep depressions towards the middle and a very large subtriangular shallow depression on each side, thus appearing tricarinate in this sex. Legs rather slender; the anterior tibiæ in the male angularly dilated on the lower edge at the base, and also considerably widened.

Length $6\frac{1}{2}$, breadth $1\frac{7}{8}$ millim. (♂ ♀.)

Hab. NORTH AMERICA, Texas.—MEXICO, Presidio de Mazatlan (*Forrer*).

Six examples have been received from Mr. Forrer, two of which are nymphs. Very like *A. pallens*, but comparatively more elongate, the scutellum shorter, the pronotum with four deep depressions on the disc in the male. The coloration of the scutellum is perhaps variable, though similar in the five full-grown specimens seen. The interocular space is narrower in the male than in the female, this being especially noticeable beneath, the insect differing in this respect from *A. pallens*. There is a specimen (♀) of this species from Texas in the British Museum, sent by Prof. Riley under the name of *A. platycnemis*.

4. **Anisops crassipes,** n. sp. (Tab. XXII. fig. 15, ♂.)

Elongate, moderately robust, very shining; nigro-violaceous, the head and a triangular patch at the sides of the pronotum in front sordid white, the elytra with several small, triangular, carmine-red spots at the humeral angles; the abdomen black, testaceous towards the base above, the connexival segments each with a flavous spot beneath, the rest of the under surface in great part, the antennæ, and legs testaceous, all the tibiæ externally, and the hind femora beneath, each with a more or less distinct darker median line. Head with (the eyes) nearly as wide as the pronotum in the male, a little narrower in the female; interocular space about twice as wide on the vertex as at the base, the vertex sulcate down the middle. Pronotum almost unimpressed and similarly formed in both sexes, a little shorter than the scutellum. Legs comparatively stout; the anterior tibiæ in the male angularly dilated on their lower edge at the base, and also greatly widened.

Length 7–$7\frac{3}{4}$, breadth 2–$2\frac{1}{8}$ millim. (♂ ♀.)

Hab. GUATEMALA, San Gerónimo, Dueñas, Guatemala city (*Champion*).

Five specimens. Distinguishable by its very dark coloration, the rufous spots at the humeral angles of the elytra, the stout legs, and the almost unimpressed pronotum in both sexes. The anterior tibiæ are greatly widened in the male.

5. **Anisops pallens,** n. sp. (Tab. XXII. fig. 16, ♂.)

Elongate, rather slender, smooth, shining; testaceous or pale testaceous, the head and pronotum whitish, the abdomen partly black above and almost entirely so beneath, the flavous spots on the connexival segments excepted. Head (with the eyes) a little narrower than the pronotum; interocular space about twice as wide on the vertex as at the base, the vertex deeply sulcate down the middle. Pronotum unimpressed and similarly formed in both sexes, much shorter than the scutellum. Legs rather slender, but with the anterior and intermediate tarsi comparatively stout; the anterior tibiæ in the male angularly dilated on their lower edge at the base, and also considerably widened.

Length $5\frac{1}{2}$–$6\frac{1}{2}$, breadth $1\frac{2}{3}$–$1\frac{7}{8}$ millim. (♂ ♀.)

Hab. GUATEMALA, San Gerónimo (*Champion*).

Five specimens. This insect resembles Herrich-Schäffer's figure of the undescribed *A. dominicanus*, from Hayti, except that it is more parallel-sided and much smaller.

A. pallens agrees with *A. crassipes* in having the pronotum unimpressed in both sexes, but differs from that species in its smaller size, much shorter pronotum, pallid coloration, and more slender limbs. The colour of the abdomen and metanotum is, as usual, visible through the diaphanous elytra.

PLEA.

Plea, Leach, Trans. Linn. Soc. xii. p. 14 (1815); Fieber, Gen. Hydroc. p. 27, t. 4 B.
Ploa, Stephens, Nomencl. Brit. Ins. p. 66 (1829); Fieber, Ent. Mon. p. 16, t. 1. figg. 27–35; Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 449; Herrich-Schäffer, Wanz. Ins. ix. p. 45, t. 295. figg. A–D.

This peculiar genus includes several very small extremely closely allied species from widely separated geographical regions.

1. **Plea striola.** (Tab. XXII. fig. 17, var.)

Ploa striola, Fieb. Ent. Mon. p. 18, t. 2. figg. 1–3 [1].
Plea striola, Uhler, in Kingsley's Stand. Nat. Hist. ii. p. 253 [2]; P. Z. S. 1893, p. 706 [3]; 1894, p. 224 [4].

Hab. North America [1], Southern United States [2 4], California.—Mexico [4], Vera Cruz (*Höge*); Guatemala, Dueñas, Paso Antonio (*Champion*).—Antilles, Cuba [4], St. Vincent [3], Grenada [3].

The three or four specimens from each of the Central-American localities quoted differ somewhat *inter se*: those from Vera Cruz are very pale, with distinct rufo-fuscous spots on the head, pronotum, and elytra, and have the entire upper surface closely punctured; those from Dueñas have a dark stripe on the head only and the scutellum almost smooth; those from Paso Antonio are very small, almost unicolorous, and very coarsely punctured. *P. striola* is considerably smaller than the Palæarctic *P. minutissima*.

Fam. CORIXIDÆ.

CORIXA.

Corixa, Geoffroy, Hist. abrégée des Ins. i. p. 477 (1764); Burmeister, Handb. der Ent. ii. p. 186.
Corisa, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 445 (1843); Fieber, Gen. Hydroc. p. 28, t. 4. figg. C; Sp. Gen. Corisa, p. 13.
Sigara, Fabricius, Syst. Ent. p. 691 (1775).

Of this genus we have, unfortunately, very little material, not a single representative having been obtained by us from Nicaragua or Panama. Many species must inhabit the central plateau of Mexico, where, indeed, one is so exceedingly abundant as to be collected and sold in large quantities for the food of cage-birds. Amongst the Central-American forms before me, two well-marked groups or subgenera are represented, one with and the other without a claw to the anterior tarsi (palæ).

In the males of most of the *Corixæ* there is a curious stridulatory organ, termed the strigil, on the right or left side of the upper surface of the abdomen towards the apex, this varying in structure according to the species*; the abdominal segments, ventral and dorsal, are also asymmetric in this sex, sometimes on the right side and sometimes on the left†.

A. *Anterior tarsi without claw* ‡.

1. Corixa interrupta.

Corixa interrupta, Say, Journ. Acad. Phil. iv. p. 328 (1825)[1]; Complete Writings, ii. p. 250[2]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 340[3]; in Kingsley's Stand. Nat. Hist. ii. pp. 250, 251, fig. 314[4].

Corisa interrupta, Fieb. Sp. Gen. Corisa, p. 27, t. 2. figg. 7 (♂ ♀)[5].

Hab. North America[5], New York[3 4], Missouri[1 2], Illinois, Maryland, and California[3].—Mexico[5].—Brazil[4 5].

I have not seen a specimen of this species from within our limits. It is nearly as large as the European *C. geoffroyi*, Leach. Prof. Uhler[4] describes "the pronotum as having nine or ten narrow yellow lines; the clavus crossed by zigzag lines at the base, and by others which become more slender and straight towards the tip; the corium with similar lines, which are more sinuous and interrupted towards the inner margin. The palæ curved, a little widened in the middle, and acute at the tip; those of the male cut off obliquely at the apex, and the sides not curved, but nearly parallel. The frontal depression of the male oblong, not very deep, extending up to about as far as the middle of the eyes. Length $\frac{5}{12}$ of an inch."

2. Corixa inscripta.

Corisa inscripta, Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 294[1].

Hab. North America, Colorado, New Mexico, Arizona, Texas, and Lower California[1]. —Mexico, Orizaba &c.[1].

Unknown to me. It is described as having "a short head, and a long, nearly triangular pronotum, the latter with scarcely any indication of a median carina and the surface crossed by about fourteen slender brown lines; the elytra with very slender, short, dark brown lines arranged in four uneven longitudinal series, the clavus with broad, straight, and almost complete yellow bands at the base; the frontal depression of the male large and ovate; the palæ of the male short, broad-cultrate, acute at the tip, those of the female a little longer. Length 8–9 millim."

* Figured by Handlirsch (Ann. naturhist. Hofmus. Wien, 1900, p. 138, t. 7. figg. 6, 7).

† In the following descriptions the terms "right" and "left" of the ventral segments are applied as viewed from beneath.

‡ *C. interrupta*, *C. inscripta*, *C. serrulata*, and *C. melanogaster* are unknown to me.

3. **Corixa kollari.** (Tab. XXII. figg. 18, 18 *a*, *b*, ♂.)

Corisa kollarii, Fieb. Sp. Gen. Corisa, p. 17, t. 1. figg. 7 (♂ ♀)[1]; Guérin, in Sagra's Hist. fis. polit. y nat. de Cuba, Ins. p. 177, t. 13. fig. 14[2].

Corisa cubæ, Uhler, P. Z. S. 1894, p. 224[3] (nec Guérin).

♂. Rather short and broad, comparatively robust, shining; pale testaceous, the eyes black, the pronotum with 7–9 transverse black lines, which are narrower than the pale interspaces; the elytra nigro-fuscous, the clavus, corium, and membrane closely marked with short, irregular, undulate, transverse, pale lines, these becoming wider and quite straight on the basal portion of the clavus, the marginal area testaceous, in some specimens black below the base, beyond the middle, and at the apex; the meso- and metanotum, and the dorsal segments of the abdomen, sometimes partly black; the legs entirely pale. Head with two rows of punctures on the vertex and some punctures near the eyes; the frontal depression very large, oval, deep. Pronotum obsoletely rastrate, not carinate. Elytra with the clavus very sparsely, obsoletely rastrate, the corium very minutely punctulate. Anterior femora stout, subangularly dilated on the lower side at about the middle; anterior tibiæ broadly dilated, triangular, acutely produced at the outer apical angle; palæ broad, strongly rounded on their outer edge, blunt at the tip, with numerous long hairs on the inner edge. Intermediate tibiæ about one-half longer than the tarsi, the tarsi a little shorter than the claws. Ventral segments asymmetric on the left side. Strigil absent.

♀. Head without frontal depression; anterior tibiæ not dilated; palæ much narrower.

Length $6\frac{1}{2}$–$6\frac{3}{4}$ millim.

Hab. NORTH AMERICA, Florida[3], Texas[3].—MEXICO[3], Presidio de Mazatlan (*Forrer*), Vera Cruz (*Mus. Brit.*).—VENEZUELA; BRAZIL[1]; ANTILLES, Cuba[1 2], Grenada[3].

Several specimens of both sexes. Recognizable by the acutely triangularly dilated anterior tibiæ in the male, and the absence of a strigil in this sex. The elytra are closely and irregularly vermiculate with pale lines, these, however, becoming straight towards the base of the clavus. *C. cubæ*, according to Guérin's figure, has the anterior tibiæ not so acutely produced at the apex, and the palæ more curved, in the male.

4. **Corixa guatemalensis,** n. sp. (Tab. XXII. figg. 19, 19 *a*, *b*, ♂.)

♂. Rather short, comparatively broad, shining; the head flavous, the eyes black; the pronotum with about seven black and seven obscure testaceous transverse lines, of almost equal width; the mesonotum black; the elytra nigro-fuscous, the clavus and corium only with obscure paler transverse lines, the marginal area black, the membrane immaculate; the body beneath pale testaceous, the abdomen in great part black; the legs flavo-testaceous, the long hairs on the hind tarsi black. Head with two interrupted rows of punctures on the vertex, and some other punctures near the eyes, and with a long, oval, moderately broad, frontal depression. Pronotum obsoletely rastrate, not carinate. Elytra with the clavus and the base of the corium finely rastrate. Anterior tibiæ broad, subtriangular; palæ moderately broad, subparallel at the base, rounded on their outer edge towards the apex, the latter somewhat pointed. Intermediate tibiæ much longer than the tarsi, the tarsi and claws subequal in length. Ventral segments very asymmetric on the right side. Strigil on the left side, broader than long, with five rows of teeth.

♀. Head without frontal depression; anterior tibiæ not dilated; palæ a little narrower.

Length $5\frac{1}{2}$–$5\frac{7}{8}$ millim.

Hab. GUATEMALA, near the city (*Champion*).

Six specimens. A small obscurely-coloured species, chiefly distinguishable by the triangularly dilated anterior tibiæ in the male, and the finely rastrate clavus. It is smaller than *C. kollari*, the clavus is more distinctly rastrate, and the indistinct elytral markings are much more regular.

5. **Corixa mariæ,** n. sp. (Tab. XXII. figg. 20, 20 *a*, ♂.)

♂. Moderately elongate, rather slender, feebly shining; pale testaceous, the eyes black; the pronotum with seven narrow transverse black lines; the elytra with short, irregular, undulated, transverse black lines, which are narrower than the pale interspaces, and become a little straighter on the basal portion of the clavus, the marginal area immaculate; the tips of the intermediate tarsi, and the apices of the hind tarsi rather broadly, infuscate. Head broad, the interocular space at the base wider than one of the eyes, with two rows of punctures on the vertex, and some other punctures at the sides, and with a very short median carina at the base; the frontal depression large, oval, deep. Pronotum, clavus, and corium subrastrate, the pronotum not carinate. Anterior tibiæ strongly produced at the apex, beneath which is a short tooth, the palæ appearing to be articulated at about the middle of their lower edge; the latter very broad, somewhat piriform, rather blunt at the tip, and furnished with a row of long and very fine hairs on their inner edge. Intermediate tibiæ more than one-half longer than the tarsi, the latter of about the same length as the claws. Ventral segments asymmetric on the right side. Strigil?

Length 4 millim.

Hab. Mexico, Tres Marias Is. (*Forrer*).

The description is taken from a single male. Two immature females, with equally broad head, sent with it from the same locality, have the pronotum and elytra smoother, the pronotum with ten (instead of seven) transverse black lines, and the lines crossing the basal portion of the clavus quite straight; these specimens perhaps belong to a different species, but till more material is obtained nothing can be done with them. *C. mariæ* is one of three very small, nearly allied Mexican species, and distinguishable from the other two by the shape of the anterior tibiæ and palæ, and the broad head. *C. verticalis*, *C. pygmæa*, and *C. burmeisteri*, Fieb., and *C. reticulata*, Guér., appear to be very similar American forms.

6. **Corixa parvula,** n. sp. (Tab. XXII. figg. 21, 21 *a*, ♂.)

♂. Very like *C. mariæ*, the markings of the upper surface being nearly similar, the legs, the long hairs on the hind tarsi excepted, entirely pale; the head not so wide, the interocular space at the base being narrower than one of the eyes, and with a distinct smooth raised line down the middle of the whole length of the vertex, terminating in a projecting point at the base, the frontal depression very large, oval, and deep; the pronotum with nine black lines, the sides obliquely truncate; the clavus and corium smooth; the anterior tibiæ considerably produced at the apex, but without the apical tooth; the palæ short and very broad, somewhat piriform, slightly pointed at the tip, with a row of long fine hairs on the inner edge; the intermediate claws longer than the tarsi. Ventral segments asymmetric on the right side. Strigil?

Length 4 millim.

Hab. Mexico, Presidio de Mazatlan (*Forrer*).

One male. Very like *C. mariæ*, from the islands opposite, but with a narrower head, shorter palæ, entirely pale intermediate tarsi, and longer intermediate claws. The North-American *C. burmeisteri*, Fieb., must be a very near ally of this insect, but, to judge from Fieber's figures, it has the palæ of the male more pointed at the tip. The pronotum has nine transverse black lines.

Prof. Uhler (P. Z. S. 1894, p. 224) has referred to *C. reticulata*, Guér., some very similar specimens from the Island of Grenada; these, however, have the marginal area

of the elytra partly infuscate. According to Guérin the palæ of *C. reticulata* (? of ♂) are obliquely obovate.

7. **Corixa sexlineata,** n. sp. (Tab. XXII. figg. 22, 22 *a*, ♂.)

♂. Moderately elongate, rather slender, smooth, shining; pale testaceous, the eyes black; the pronotum nigro-fuscous, with six narrow transverse yellow lines (these being narrower than the five dark interspaces); the elytra nigro-fuscous, with short, narrow, undulate, transverse pale lines, these becoming quite straight on the basal portion of the clavus, the marginal area with a spot towards the apex and the costa blackish; the dorsal surface of the abdomen with two black spots in the middle; the apices of the intermediate tarsi slightly infuscate; the hind tarsi with long fuscous hairs. Head with two rows of punctures on the vertex and some other punctures close to the eyes, and with a projecting point in the centre at the base, the interocular space at the base much narrower than one of the eyes; the frontal depression very large, oval. Pronotum not carinate. Anterior tibiæ strongly produced at the apex; palæ broad and somewhat piriform, rather blunt at the tip. Intermediate tibiæ nearly one-half longer than the tarsi, the latter not quite so long as the claws. Ventral segments asymmetric on the right side. Strigil on the left side, transverse, with three rows of teeth.

Length 4 millim.

Hab. Mexico, Teapa in Tabasco (*H. H. Smith*).

One specimen. Differs from the two preceding species, and also from the other small American forms already alluded to, in having fewer transverse lines on the pronotum. The eyes at the base, as seen from above, are one and a half times the width of the interocular space. The pale markings on the elytra are narrower than in *C. mariæ* or *C. parvula.*

8. **Corixa mercenaria.** (Tab. XXII. figg. 23, 23 *a*, *b*, ♂.)

Corixia mercenaria, Say, Descr. N. Sp. Heteropt. Hemipt. N. Am. (New Harmony, Dec. 1831) [1]; Complete Writings, i. p. 367 [2].

Corixa mercenaria, Guér. Bull. Soc. Zool. Acclim. iv. p. 581 (1857) [3]; Rev. Zool. 1857, p. 526 [4]; Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 341 [5]; Kirk. Ent. Monthly Mag. xxxiv. p. 173 [6].

♂. Moderately elongate, smooth and shining, flavo-testaceous, the eyes black; the pronotum with from 7–9 very slender transverse black lines, and the large black spot on the disc of the mesonotum and a short oblique black streak on either side of it posteriorly showing through; the elytra with the clavus, except for a broad space at the base (the part covering the metanotum), corium, and membrane closely marked with short, undulate, irregular, transverse black lines, the marginal area pale, with a black mark at the apex and a faint transverse dark streak a little beyond the middle; the abdomen, and sometimes the meso- and metanotnum also, partly black; the legs entirely pale. Head with a short median carina at the base, and with two interrupted series of punctures on the vertex and some other punctures near the eyes; the frontal depression very large, almost extending to the inner margin of the eyes, oval, moderately deep. Pronotum with a conspicuous median carina in front. Elytra very minutely punctulate, deeply sinuate at the sides before the middle of the marginal area. Anterior tibiæ stout; palæ broad, spoon-shaped, somewhat pointed at the tip, with a row of very long hairs on their inner edge. Intermediate tibiæ nearly one-half longer than the tarsi, the tarsi a little shorter than the claws. Ventral segments of the abdomen asymmetric on the left side. Strigil on the right side, oval, much longer than broad, with six rows of teeth. Fifth dorsal segment with a fringe of very long bristly hairs at the right outer angle, these projecting over the anterior part of the strigil.

♀. Broader and paler, the discal spot of the mesonotum smaller or absent; the head convex in front; the

elytra abruptly and subangularly dilated at the sides at about the middle of the marginal area ; the palæ less widened.

Length 6–7 millim.

Hab. NORTH AMERICA, New Mexico [6], California [5].—MEXICO [1–6], Lake of Texcoco (*Dugès, in Mus. Brit.*), Lago de Chalco.

The above description has been taken from a large number of specimens sent by A. Dugès to the British Museum. *C. mercenaria*, as is well known, swarms in the large lakes near the city of Mexico, and a great deal has been written about it from an economic point of view. The eggs, larvæ, and imagines are collected and sold in Mexico as articles of food, it is said for both man and birds, and of late years they have even been imported into England for feeding cage-birds. Guérin [4] mentions two species, *C. mercenaria* and *C. femorata*, as being sold in this way, and a third is now added, the latter being a close ally of *C. mercenaria*. Thomas Gage, in 1625, appears to have been the first traveller who noticed that these insects were used for food in Mexico, and his observation has been confirmed by Say and others. Immense quantities of them have been captured on the wing towards evening.

9. **Corixa edulis,** n. sp. (Tab. XXII. fig. 24, ♂.)

♂. Elongate, smooth and shining, flavo-testaceous, the eyes black; the pronotum with from 10–12 very slender, transverse, black lines, which become fainter in front; the elytra with the clavus, except for a broad space at the base (the part covering the metanotum), corium, and membrane closely marked with short, transverse, undulate, irregular black lines, the markings so arranged as to form four irregular longitudinal series on each elytron, the marginal area pale, with a transverse streak beyond the middle and the apex slightly infuscate ; the abdomen in great part testaceous ; the legs entirely pale. Head with indications of a short median carina at the base, and with two interrupted rows of punctures on the vertex and some punctures near the eyes ; the frontal depression very large, broad oval, moderately deep. Pronotum without carina. Elytra very minutely punctulate, moderately sinuate at the sides below the base. Anterior tibiæ stout ; palæ spoon-shaped, produced and somewhat pointed at the tip. Intermediate tibiæ much longer than the tarsi. Ventral segments asymmetric on the left side. Strigil on the right side, oval, much longer than broad, with four rows of teeth. Fifth dorsal segment with a fringe of short hairs at the right outer angle.

Length $7\frac{3}{4}$ millim.

Hab. MEXICO, Lake of Texcoco (*Dugès, in Mus. Brit.*).

Three males only have been seen of this species, two of them without heads, and one female in a bad state of preservation. Nearly allied to *C. mercenaria*, but more elongate, the pronotum without a carina in front, the elytral markings arranged in irregular longitudinal series, the palæ and strigil differently formed. As in *C. mercenaria*, the elytra have a broad immaculate space at the base of the clavus. This last-mentioned character will separate the present species from *C. inscripta*.

10. **Corixa serrulata.**

Corixa serrulata, Uhler, Trans. Maryl. Acad. Sci. 1897, p. 391 [1].

Hab. North America, California [1].—Mexico [1].

I have not been able to see the description of this species.

11. **Corixa melanogaster.**

Corixa melanogaster, Kirk. Ent. 1899, p. 193 (♂) [1].

Hab. Costa Rica, Alajuela (*coll. Montandon* [1]).

The chief characters of this species are given as follows:—"Frontal fovea suboval, rather shallow, extending to about one-third of the length of the eyes. Palæ long, narrow, cultrate, with about thirty-six small, rounded, blunt teeth. Strigil rather large, almost square, with about eight rows of teeth. Intermediate tibiæ one-fourth longer than the tarsi, which are about one-seventh longer than the claws. Pronotum with 11–12 yellow lines. Pronotum, clavus, and corium feebly rastrate. Length 8 millim."

B. *Anterior tarsi with a strong claw.*

12. **Corixa abdominalis.** (Tab. XXII. figg. 25, 25 *a*, *b*, ♂.)

Corixia abdominalis, Say, Descr. N. Sp. Heteropt. Hemipt. N. Am. (New Harmony, Dec. 1831) [1]; Complete Writings, i. p. 366 [2].

Corixa abdominalis, Uhler, Bull. U.S. Geol. & Geogr. Surv. i. p. 340 [3].

Corisa abdominalis, Uhler, Proc. Calif. Acad. Sci. (2) iv. p. 294 [4].

Corixa bimaculata, Guér. Icon. Règne Anim., Ins. p. 354 (1829–38) [5]; Walk. Cat. Heteropt. Hemipt. viii. p. 199 [6].

? *Corixa femorata,* Guér. Bull. Soc. Zool. Acclim. iv. p. 581 (1857) [7]; Rev. Zool. 1857, p. 526 [8].

♀. Moderately elongate, broad, robust, shining; testaceous, the head with a ∩-shaped mark beneath and a narrow space before the labrum piceous, these markings connected in one specimen; the pronotum with from 12–16 transverse black lines, the lines becoming broader towards the apex; the elytra nigro-fuscous or black, crossed by many undulate flavescent lines, which are but little interrupted on the clavus and corium, the markings on the membrane more irregular, the corium usually with a conspicuous pale lunate mark at the apex and a space in front of it darker than the rest of the surface, the marginal area with the apex, a transverse mark at the middle, and sometimes a space below the base, more or less black; the venter and under surface in great part black; the anterior tarsi or tibiæ at the apex externally, the apices of the intermediate femora, tibiæ, and tarsi, and the apex of the hind tarsi broadly, more or less infuscate or black. Head with two widely separated, coarsely punctate sulci on the vertex, and some punctures near the eyes. Pronotum not carinate, very faintly and interruptedly rastrate. Elytra moderately sinuate at the sides below the base; the clavus and corium finely rastrate, the clavus becoming smoother in front. Anterior femora very stout; palæ long and narrow, much curved on their outer edge, furnished with very long hairs within, and with a long curved claw at the apex. Intermediate femora with a fringe of very long hairs beneath, the tibiæ and tarsi subequal in length, the claws shorter than the tarsi.

♂. Head with a shallow longitudinal depression in the middle beneath, and with several deep punctures near the lower angle of the eyes; anterior femora strongly, angularly dilated on the lower side towards the base; the palæ formed as in the female. Strigil on the right side, small, longer than broad, with four rows of teeth, the third row shorter than the others. Ventral segments asymmetric on the left side.

Length 9½–10 millim.

Hab. North America, Upper [3] and Lower California [4], Texas [3]. — Mexico [5 7 8] (*Bennett* [1 2]), Oaxaca (*Sallé* [6]).

Var. The black markings on the underside of the head more extended, the transverse flavescent lines on the clavus and corium narrower, the clavus with (♂) or without (♀) a pale lunate mark at the apex, the mesonotum and the marginal area of the elytra almost entirely black, the black markings on the legs more extended, especially on the intermediate tibiæ.

Hab. Guatemala, near the city (*Champion*).

It is impossible to identify *C. abdominalis*, Say, or *C. femorata*, Guér., for certain, in the absence of the types, which are probably lost, but the descriptions seem to apply to the specimens before me. Say, it is true, does not mention the pale lunate mark at the apex of the corium, but this is absent in the two females from Guatemala, and in one of those of the same sex from Mexico. The only character given by Guérin for *C. femorata* [7 8] is the stout anterior femora in the male. The species is a very distinct one, on account of the presence of a long curved claw to the front tarsi, and the angular dilatation of the very stout anterior femora in the male. The Guatemalan specimens merely differ from the others in their darker coloration. The strigil of the male of each form has been examined. Prof. Uhler treats [3] *C. abdominalis* and *C. bimaculata* as synonymous. A Guatemalan specimen is figured.

13. **Corixa unguiculata,** n. sp. (Tab. XXII. figg. 26, 26 *a*, *b*, ♂.)

♂. Moderately elongate, shining; pale testaceous, the eyes black; the pronotum with 8 or 9 transverse black lines, which are of about the same width as the pale interspaces; the elytra nigro-fuscous, crossed by interrupted, undulated pale lines, these becoming rather broad and straight at the base of the clavus, and more irregular on the membrane, the marginal area testaceous, black in the middle and at the apex; the body above and beneath partly black: the intermediate legs with the knees and the apices of the tarsi, and the apical joint of the hind tarsi, blackish. Head faintly carinate at the base, with an interrupted row of coarse punctures on either side of the vertex, each terminating in a deep fovea beneath, and a row of finer punctures close to the eyes; the frontal depression somewhat octagonal, very large and shallow, about as broad as long, extending upward to a little before the inner angle of the eyes. Pronotum obsoletely rastrate, smoother behind, with a faint indication of a short median ridge in front. Elytra with the clavus and the basal half of the corium obsoletely rastrate, for the rest smooth. Anterior femora very stout; anterior tibiæ not dilated; palæ long and narrow, much curved, and furnished with a long claw at the tip. Intermediate tibiæ and tarsi subequal in length, the claws a little shorter than the tarsi. Ventral segments asymmetric on the left side. Strigil?

♀. Head without frontal depression; anterior tibiæ and palæ as in the male.

Length 8 millim.

Hab. Mexico, Oaxaca (*Sallé, in Mus. Brit.*); Costa Rica (*Biolley, in coll. Distant*), Irazu (*Rogers*).

Five specimens. This insect agrees with *C. abdominalis* in having a claw to the anterior tarsi; but it is much smaller; the male has a very large frontal depression, which is truncated above and preceded by two deep foveæ only (these foveæ being also present in the female), and the anterior femora are not angulate in this sex. The palæ and anterior tibiæ are similarly formed in both sexes. It cannot be referred to

C. melanogaster, no mention being made of the anterior tarsal claw in the description of that species.

TENAGOBIA.

Tenagobia, Bergroth, Ent. Monthly Mag. xxxv. p. 282 (1899).

This genus includes the American forms previously referred to *Micronecta*, Kirk. (*Sigara*, auct.), from which it differs in the short lunuliform pronotum and the large scutellum. Seven species have been recorded from Brazil and one from Venezuela, one of the former extending to Central America, California, and the Antillean Island of Grenada.

1. **Tenagobia socialis.** (Tab. XXII. fig. 27.)

Sigara socialis, F. B. White, Trans. Ent. Soc. Lond. 1879, p. 274[1]; Uhler, P. Z. S. 1894, p. 224[2].

Hab. North America, California[2].—Mexico[2], Presidio de Mazatlan (*Forrer*), Teapa in Tabasco (*H. H. Smith*); Guatemala, Paso Antonio (*Champion*); Panama, David (*Champion*).—Amazons[1].

A variable species, as noted by Buchanan-White.

Note.—Messrs. H. Pittier and P. Biolley have published a small pamphlet on the Hemiptera-Heteroptera of Costa Rica (San José, 1895), based mainly on Mr. Distant's work in the 'Biologia Centrali-America.' A few species of Reduviidæ, &c., however, have been noticed by them, but it is probable that some of these have been incorrectly identified. The following are not recorded from Costa Rica in the preceding pages:—*Apiomerus elatus*, *A. pictipes*, and *A. spissipes*, *Leogorrus venator*, *Homalocoris maculicollis*, *Rasahus hamatus*, *Repipta taurus*, *Sinea raptoria*, *Spiniger limbatus*, and *Limnocoris profundus*; and three species are not included in our list, viz., *Macrocephalus cimicoides*, Swed., *Agriocoris fulvipes*, Fabr., and *Heza acantharis*, Linn.

Prof. Uhler (P. Z. S. 1894, pp. 198, 219) has incidentally recorded two species from Central America or Mexico that have not been enumerated in the present volume, viz., *Schizoptera flavipes*, Reut. (Ceratombidæ), and *Microvelia marginata*, Uhler; it is possible that there has been some mistake about the Central-American habitat of these insects, no definite locality being mentioned for either of them. He also states (Kingsley's Stand. Nat. Hist. ii. p. 277) that *Stenolæmus spiniventris* occurs in Arizona and Cuba, as well as in Mexico (cf. *anteà*, p. 164).

Additions to Vol. I. since 1893.

Mr. Distant (Trans. Ent. Soc. Lond. 1900, pp. 687–693) has noted a few additions to Vol. I. of this subject, concluded by him in 1893. They are mentioned here solely for the purpose of including them in the general Index to the two volumes of the Rhynchota-Heteroptera.

Pentatomidæ.

Orsilochus bajulans, Dist. Trans. Ent. Soc. Lond. 1900, p. 687.—Costa Rica, San José (*Biolley*).

Scaptocoris talpa, Champ. Ent. Monthly Mag. (2) xi. p. 256, fig.—Guatemala, Capetillo (*Rodriguez*).

Ectinopus opacus, Dist. Trans. Ent. Soc. Lond. 1900, p. 688.—Costa Rica, Helechales (*Pittier*).

Lincus discessus, Dist. loc. cit. p. 688.—Costa Rica, Talamanca (*Pittier*).

Brochymena cuspidata, Dist. loc. cit. p. 689.—Costa Rica, San José (*Biolley*).

Padæus bovillus, Dist. loc. cit. p. 689.—Costa Rica, Tuis (*Biolley*).

Murgantia bifasciata (Herr.-Schäff.), Dist. loc. cit. p. 690.—Costa Rica, Tuis (*Biolley*); Brazil.

Coreidæ.

Melucha biolleyi, Dist. Ann. & Mag. Nat. Hist. (7) vi. p. 374.—Costa Rica, Turrialba (*Biolley*).

Mozena alata, Dist. loc. cit. p. 375.—Costa Rica, Tuis (*Biolley*).

Bardistus superbus, Dist. Ann. & Mag. Nat. Hist. (7) ii. p. 135.—Costa Rica, Guaitil de Pirris (*Biolley*).

Acanthocephala pittieri, Mont. Ann. Soc. Ent. Fr. 1895, p. 7, t. 1. f. 2.—Costa Rica.

Leptoglossus oppositus (Say), Dist. Trans. Ent. Soc. Lond. 1900, p. 691.—North America (Georgia, Texas), Mexico (Orizaba).

Anasa perfusa, Dist. loc. cit. p. 691.—Costa Rica, San José (*Biolley*).

Paryphes perpictus, Dist. loc. cit. p. 692.—Costa Rica, Talamanca (*Pittier*).

Pyrrhocoridæ.

Theraneis oleosa, Dist. loc. cit. p. 692.—Costa Rica, Talamanca (*Pittier*).

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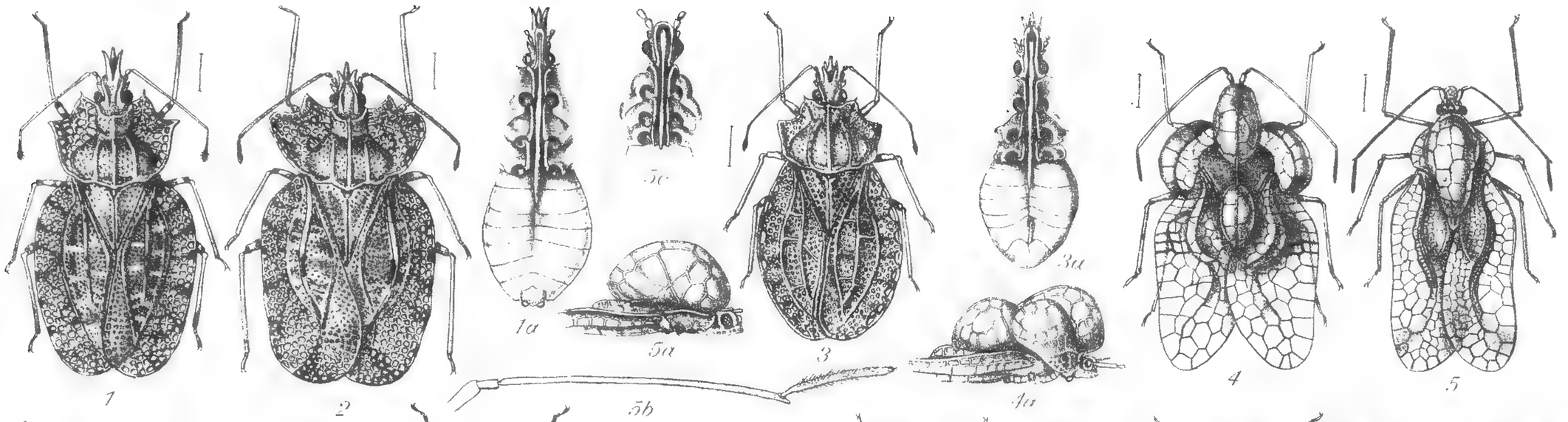
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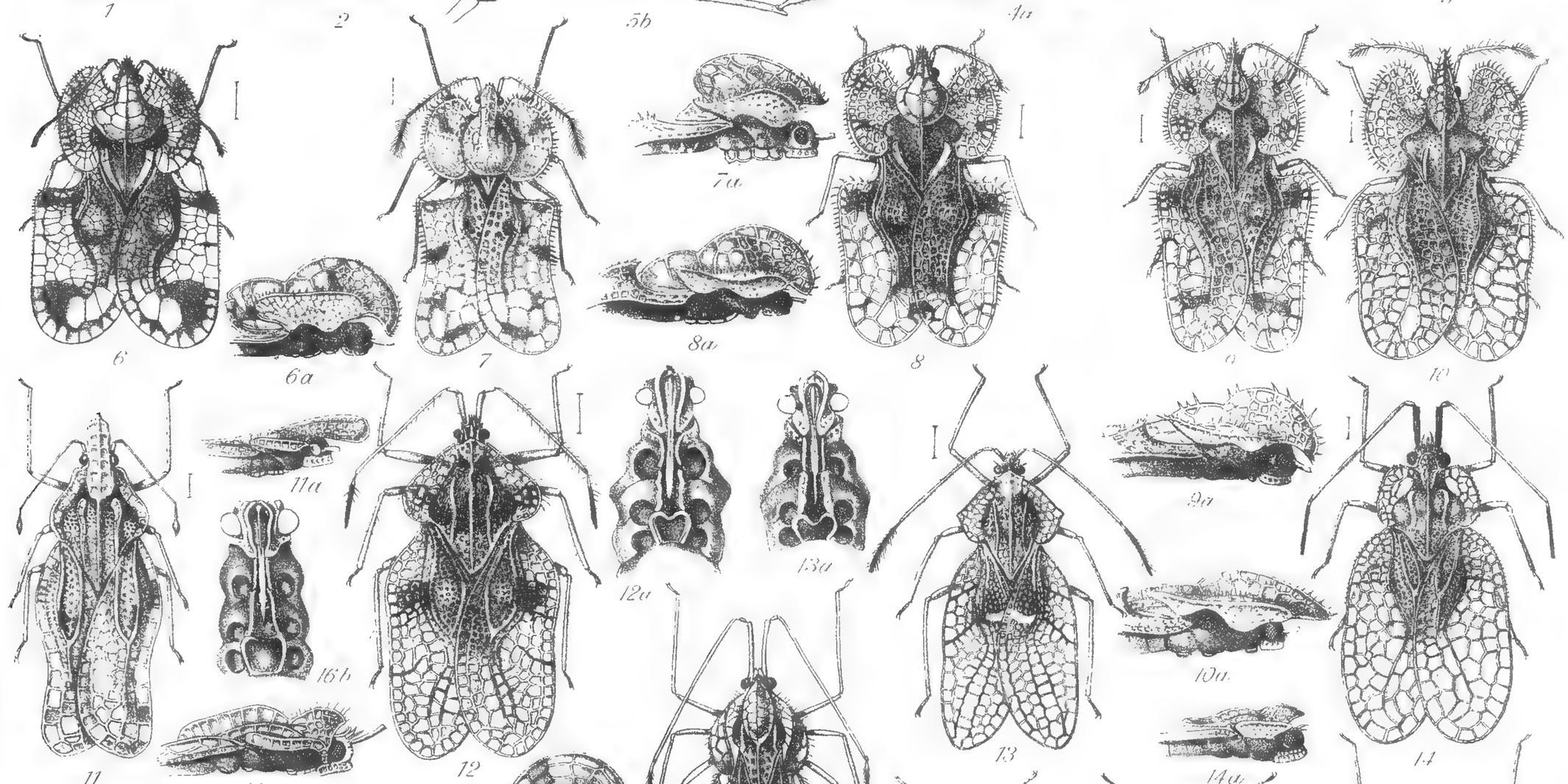
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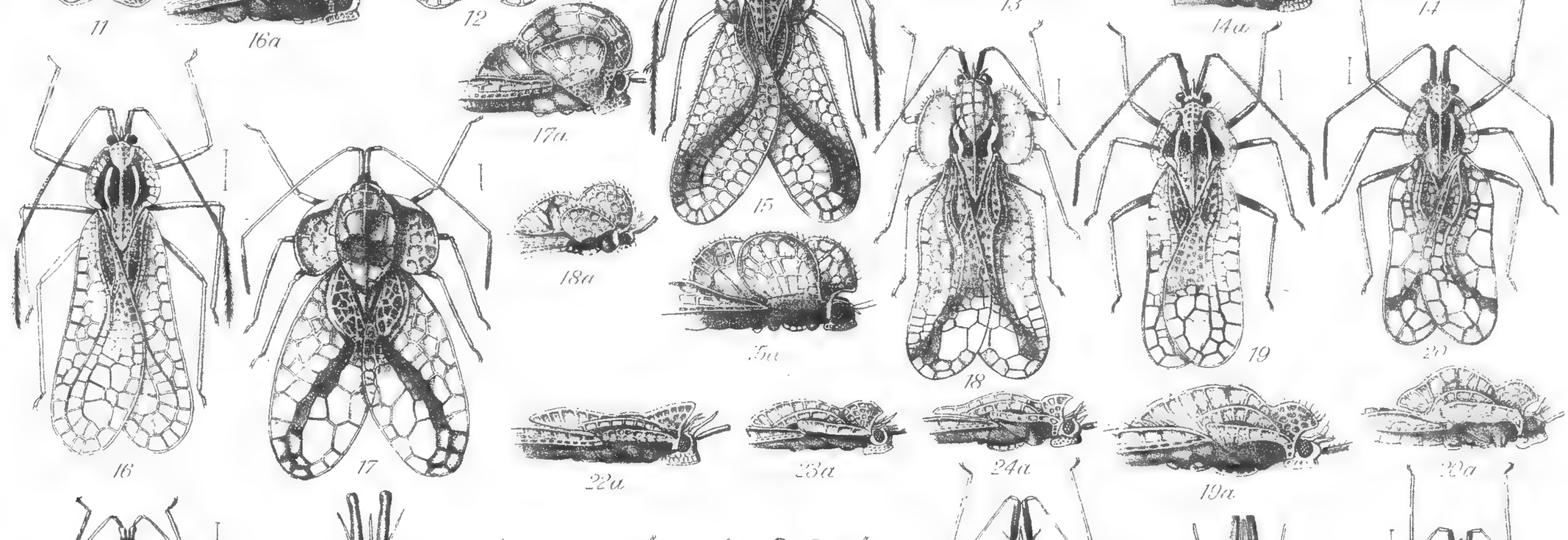
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1, 1a ♂ PHATNOMA MARMORATA.
2 " ANNULIPES.
3. 3a ♀ " ONATA.
4. 4a DICYSTA VITREA.
5. 5a-c MEGALOCYSTA PELLUCIDA.
6. 6a CORYTHUCHA FUSCIOLA.
7. 7a " DECENS.
8. 8a " UNIFASCIATA.
9. 9a CORYTHUCHA SPINOSA
10. 10a " SETOSA
11, 11a CORYTHAICA CARINATA
12. 12a CARCAPHIA PATYCIA.
13. 13a " NIGRIPES
14. 14a " PALLIDULA
15. 15a LEPTOSTYLA VESICULOSA
16. 16a, b " LONGIPENNIS
17. 17a " NIGRA.
18. 18a LEPTOSTYLA SIMILIS
19. 19a " PUNCTULATA
20. 20a " FUSCIPENNATA
21. 21a, b, c " FLAVA.
22. 22a " PUNCTATA
23. 23a " PALLIDA
24. 24a " ANGUSTATA
25. 25a, b " LINEOLA

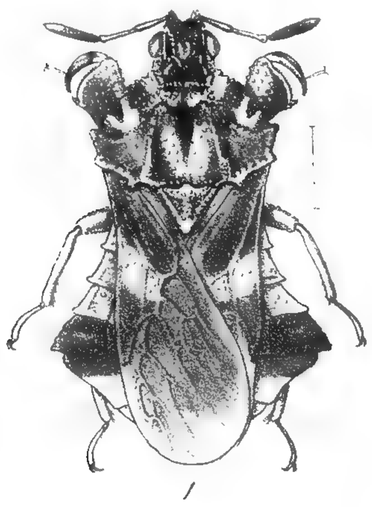
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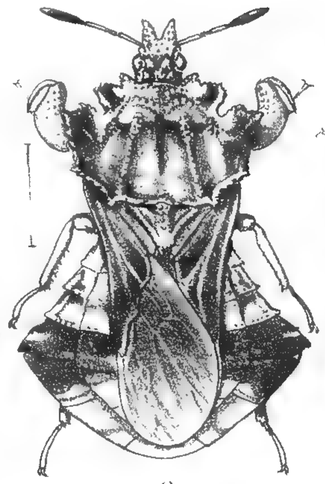
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2, 2a LEPTOSTYLA DILATICOLLIS.
3, 3a " BIFASCIATA.
4, 4a " DIVISA.
5, 5a,b " FURCULATA.
6, 6a " CONSTRICTA.
7, 7a LEPTOPHARSA UNICARINATA.
8, 8a,b MACROTINGIS BISERIATA.
9, 9a " UNISERIATA.
10, 10a LEPTODICTYA TABIDA.
11, 11a,b " CRETATA.
12, 12a " CIRCUMCINCTA.
13, 13a LEPTOBYRSA LATIPENNIS.
14, 14a " TRANSLUCIDA.
15 " PLICATA.
16, 16a " CHIRIQUENSIS.
17 " NIGRICEPS.
18, 18a,b STENOCYSTA PILOSA.
19, 19a,♂ ACANTHOCHILA ARMIGERA.
20♀ ACANTHOCHILA ARMIGERA.
21♀, 22♂ AMBLYSTIRA FUSCITARSIS.
23 " OPACA.
24 " ATRINERVIS.
25 " LÆVIFRONS.
26 TIGAVA PULCHELLA.
27 LEPTOYPHA BINOTATA.
28 " BREVICORNIS.
29, 29a TIGAVA CONVEXICOLLIS.

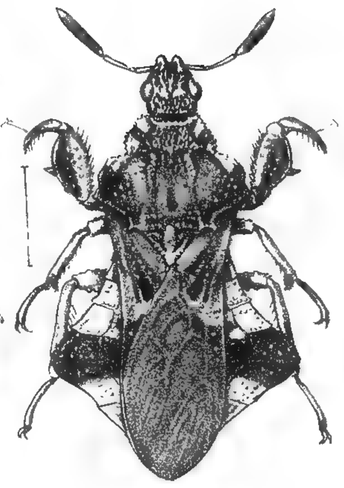
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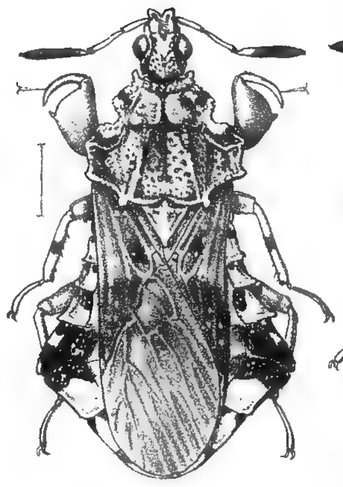
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2 " " ,var.
3 TELEONEMIA OCHRACEA.
4 " RUGOSA.
5 " FORTICORNIS.
6 " PILICORNIS.
7 " ATRATA.
8,8a " BIFASCIATA.
9,9a,b " PROLIXA.
10 TELEONEMIA PROLIXA ,var.
11,11a,b " NOTATA.
12,12a " SCRUPULOSA.
13,13a,b ♀ " NIGRINA.
14,14a " CYLINDRICORNIS.
15,15a " VARIEGATA.
16,16a " PICTA.
17,17a EURYPHARSA FENESTRATA.
18,18a TELEONEMIA ALBOMARGINATA.
19,19a ATHEAS FLAVIPES.
20 " FUSCIPES.
21 " NIGRICORNIS.
22 ACYSTA INTEGRA.
23 " INTERRUPTA.
24,24a,b MONANTHIA MONOTROPIDIA.
25 " C-NIGRUM.
26 LEPTOSTYLA PARTITA.

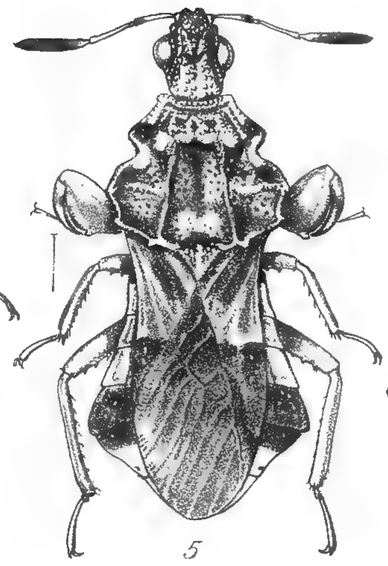
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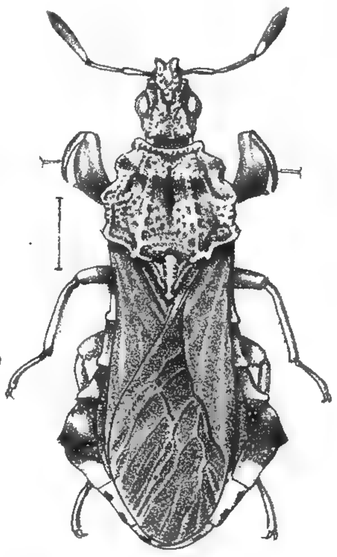

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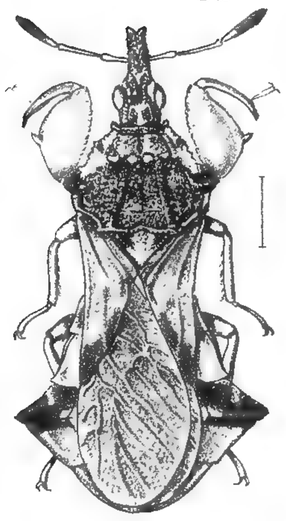

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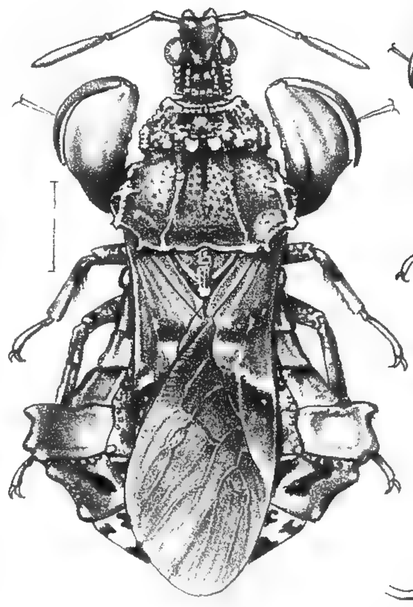

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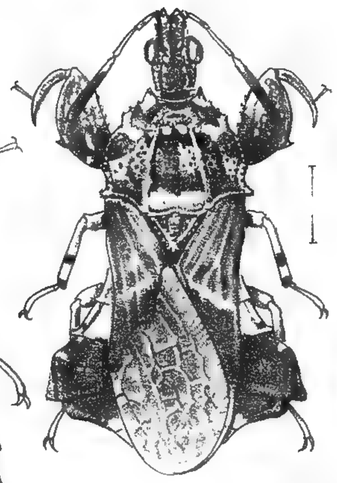

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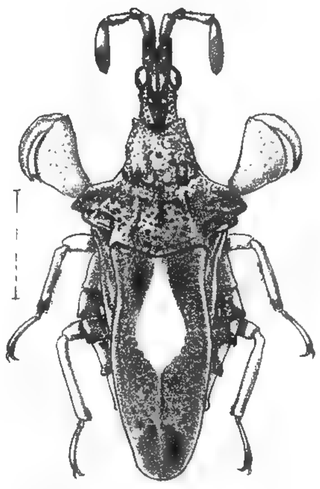

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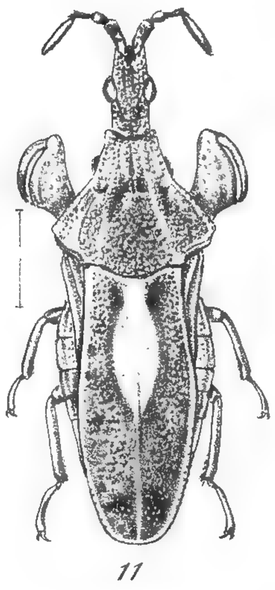

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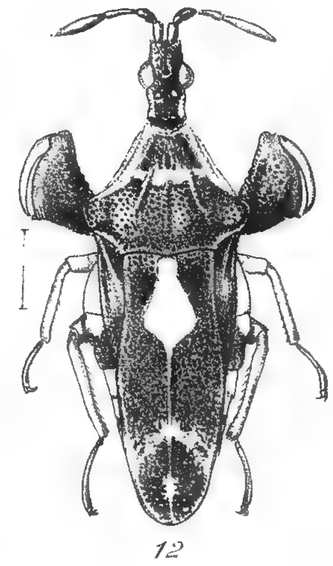

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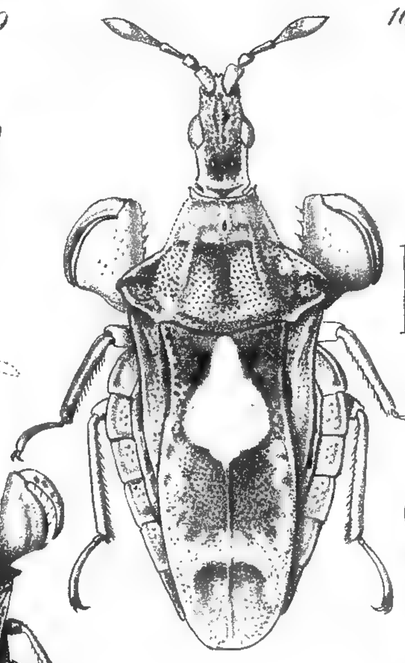

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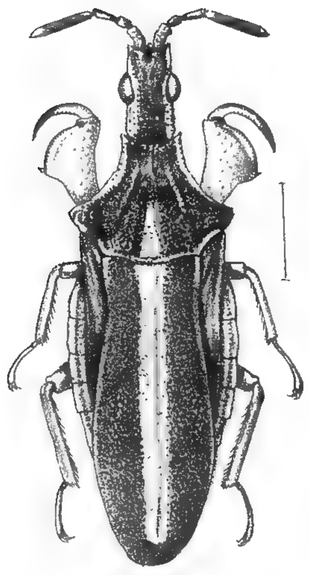

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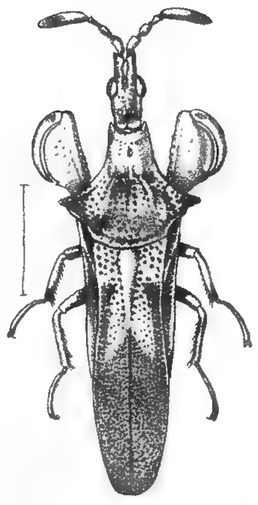

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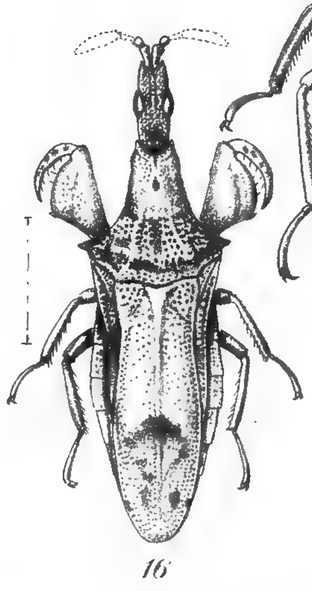

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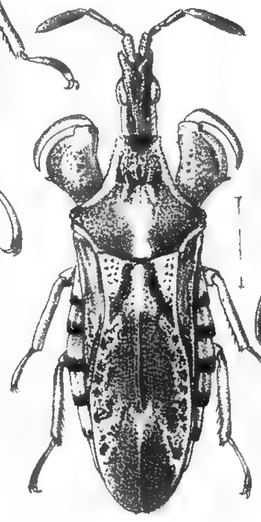

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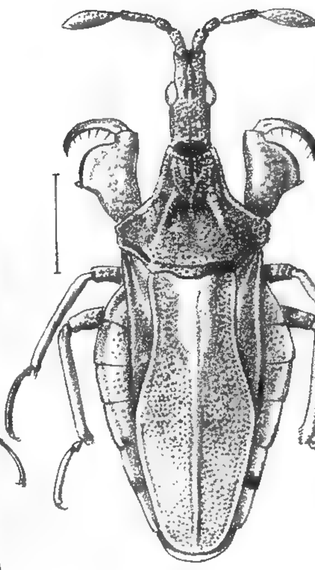

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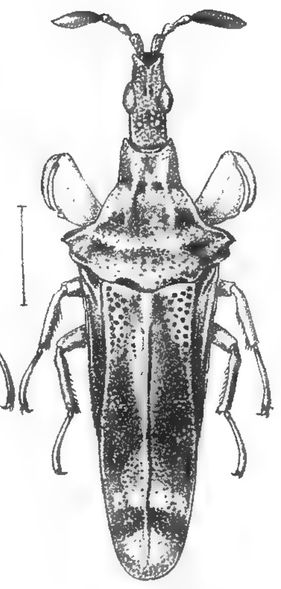

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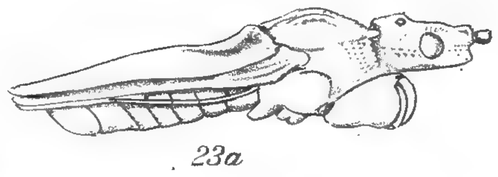

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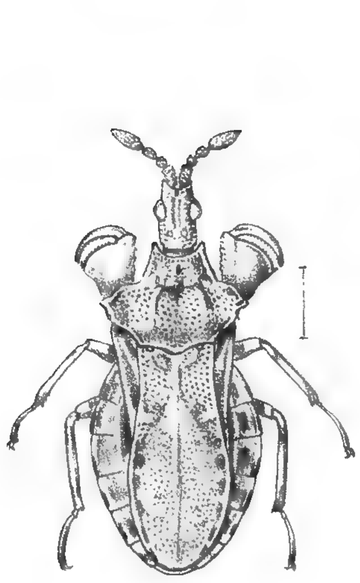

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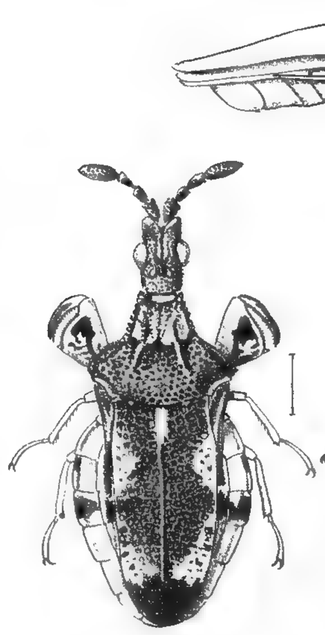

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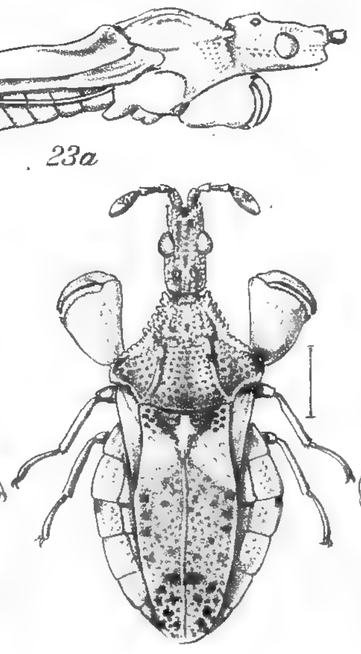

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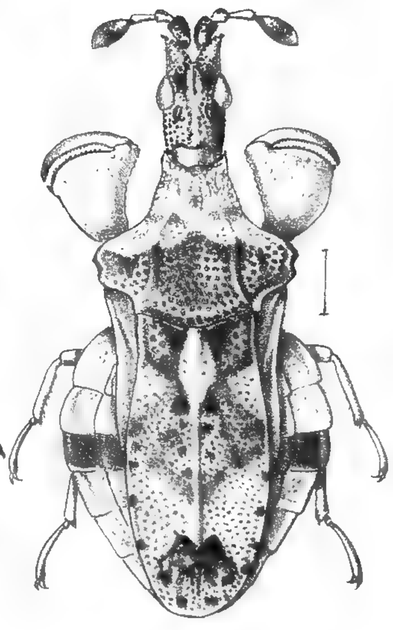

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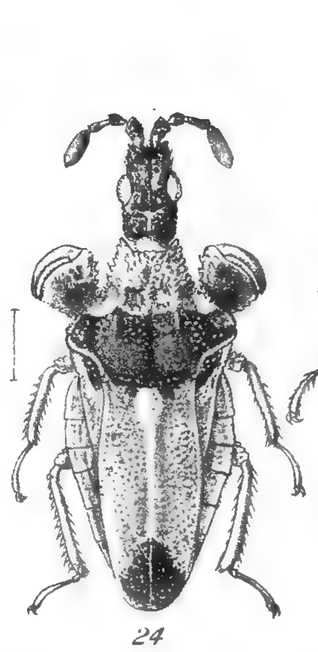

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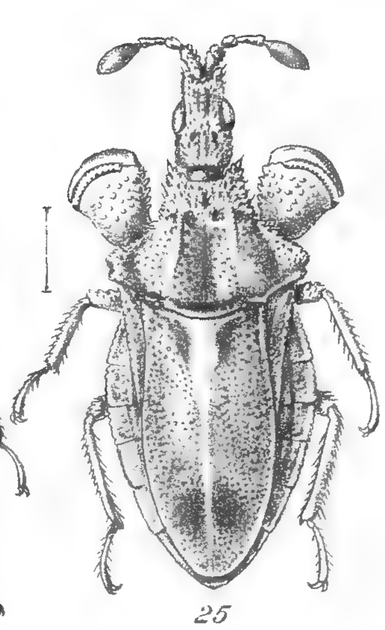

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25

1♂,2♀ PHYMATA EROSA, v. FASCIATA
3♂ " " , v. GRANULOSA.
4♂ " " , v. SEVERINI.
5♂ " " , v. PARVA
6♀ " HANDLIRSCHI
7♀ " ACUTANGULA

8, 8a ♀ PHYMATA NOUALHIERI
9, 9a ♂ " ALBOPICTA.
10♂ MACROCEPHALUS NOTATUS.
11♂ " ASPERSUS.
12♂, 13♀ " PANAMENSIS.
14♂ " FALLENI.
15♂, 16♀ " ANGUSTATUS.

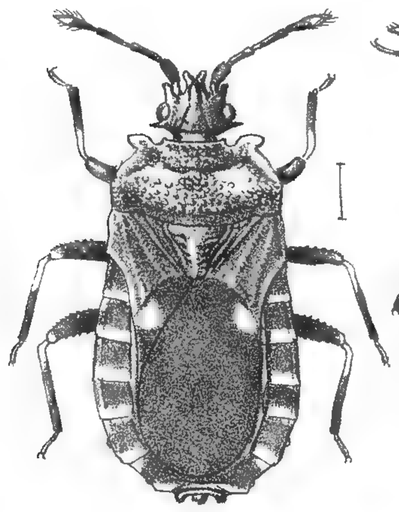
17♂, 18♀ MACROCEPHALUS GRANULATUS.
19♂ " TENUATUS
20♀ " PAEQUALIS.
21♂, 24♀ " STÅLI.
23♂, 23a ♂ " LEVIDUS
21♂, 25♀ " SPICULOSUS

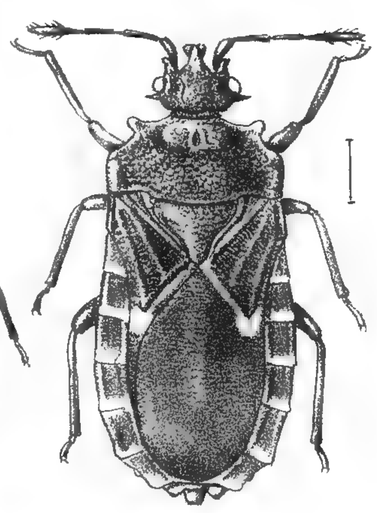
Edwin Wilson Cambridge

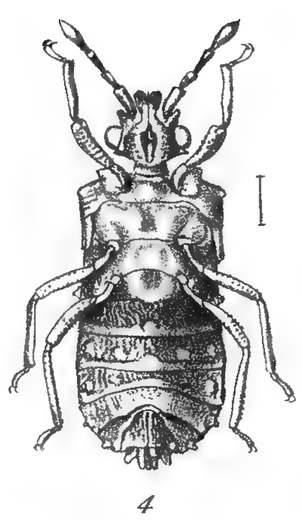
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8a 2a 8 9 10 7 4a 11 12 13
15a 15 14 17a 16 17 18 27 19
20 21 22 23 24 24a 25 26a 26

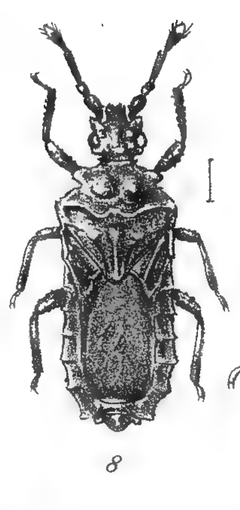
1♀ ARADUS FALLENI.
2,2a,b♀ CALISIUS FEROX.
3♂ PHYLLOTINGIS INTERJECTA.
4,4a,b♀ CALISIOPSIS AMPLICEPS
5,5a♂ PROXIUS PALLIATUS.
6,7♀ " PERSONATUS
8,8a♂ " GYPSATUS
9♀ " " ,var.
10♂,11♀ CARVENTUS MEXICANUS
12♂ HESUS CORDATUS.
13♂ " FLAVIVENTRIS.
14♀ " " ,v. SUBARMATUS.
15,15a♀ PSOROSOMA FORFICULINUM.
16♂ HELENUS HIRSUTUS.
17,17a♂ MIORRHYNCHUS LONGIPES.
18♂ ARTAGERUS SETOSUS.
19♂,20♀ " CRISPATUS.
21♂,22♀ " HISTRICUS.
23♀ " HISPIDUS.
24,24a♂ APHLEBODERRHIS COMATA.
25♀ " "
26,26a♂ " PUBESCENS.
27♀ " "

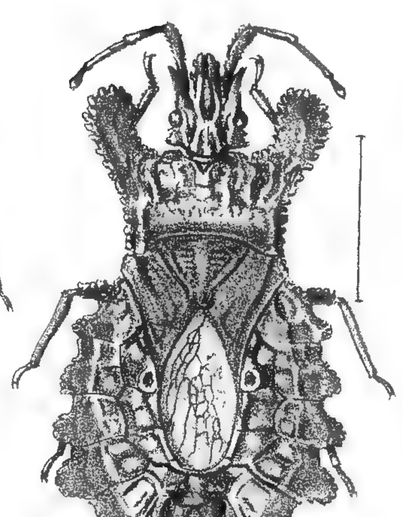
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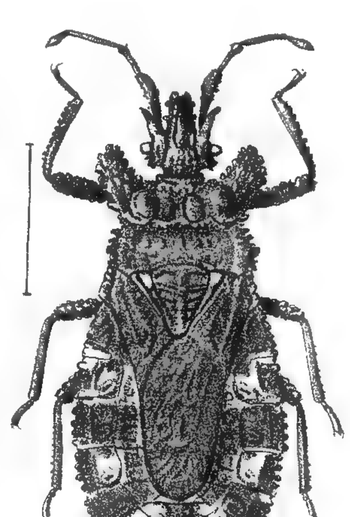

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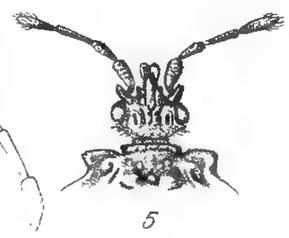

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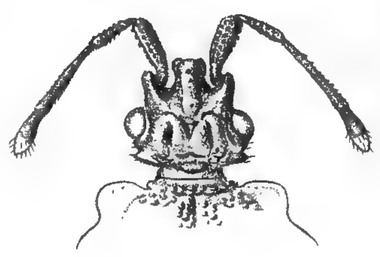

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1a


3


2a

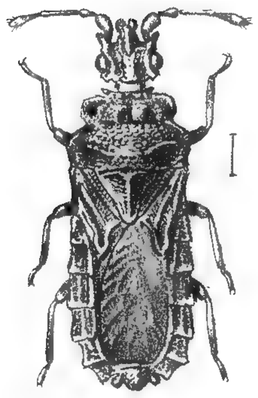

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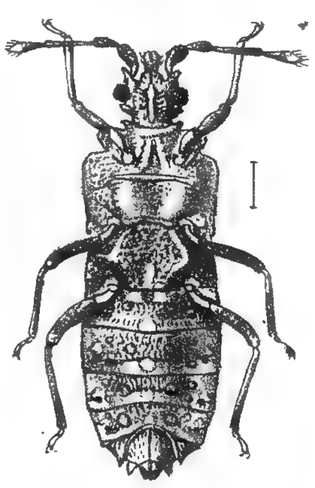

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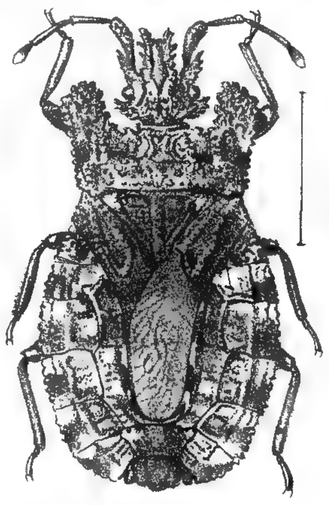

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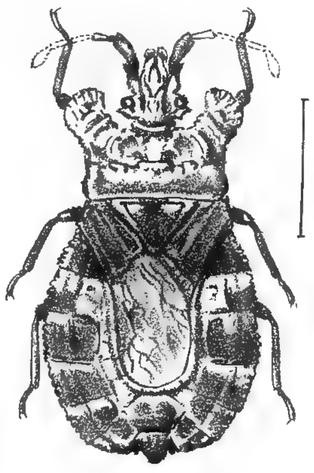

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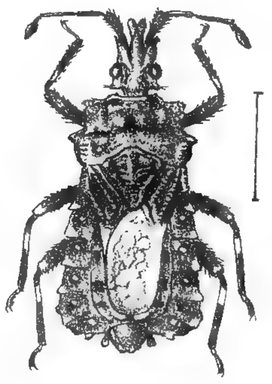

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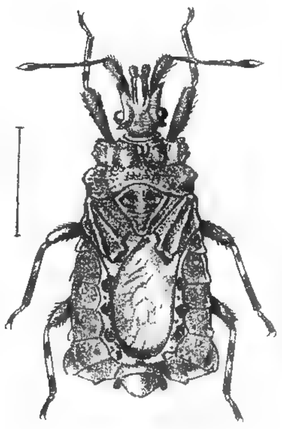

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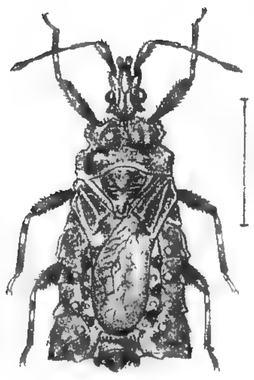

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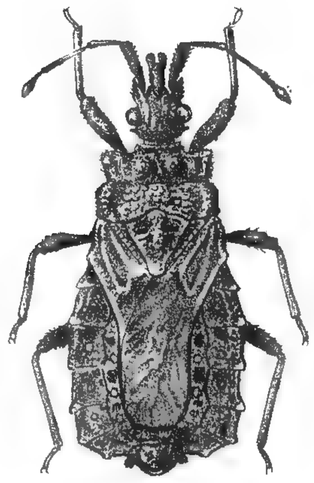

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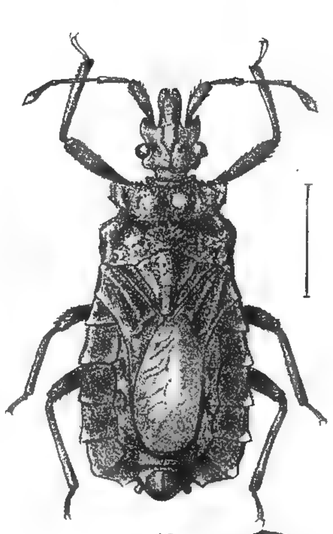

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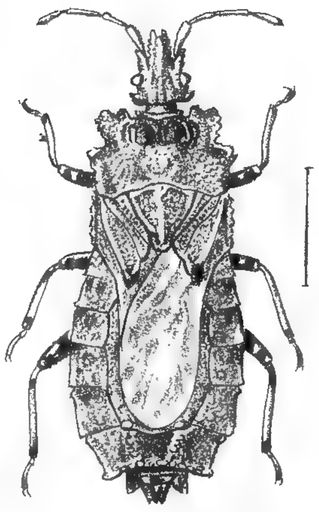

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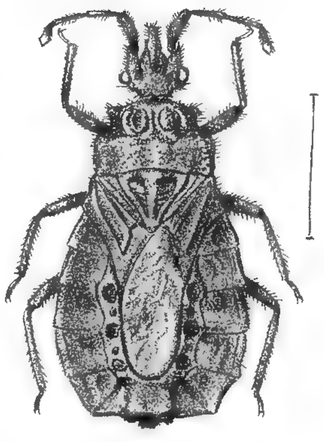

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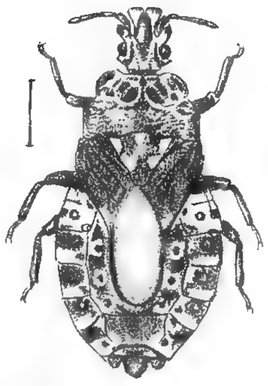

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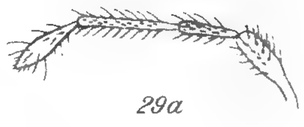

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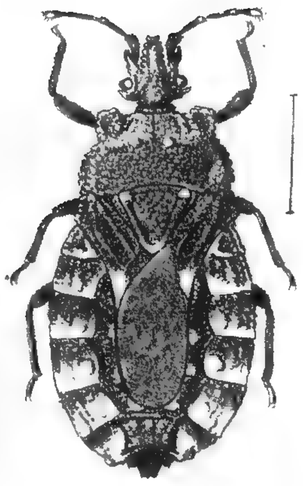

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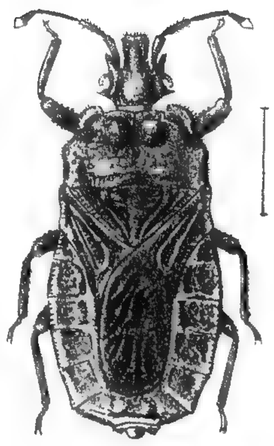

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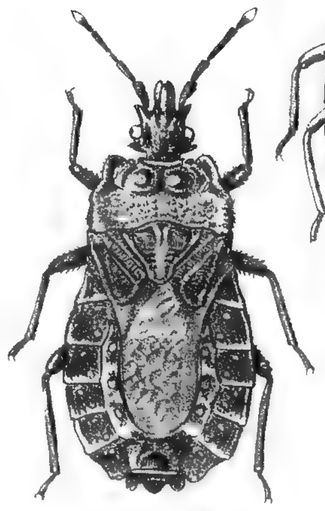

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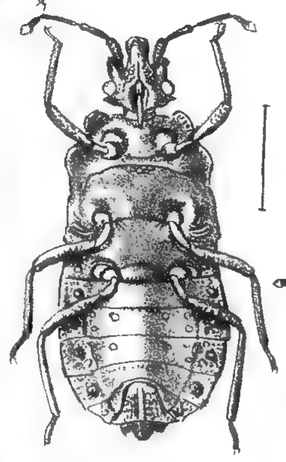

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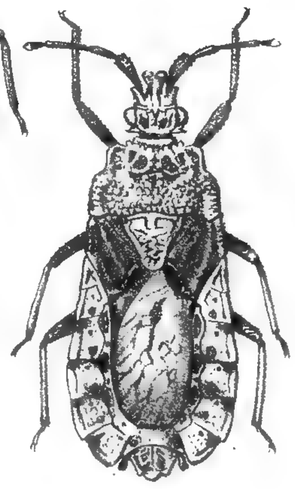

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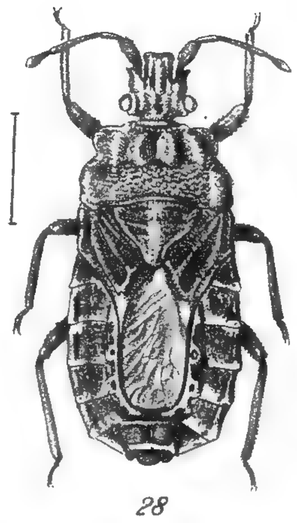

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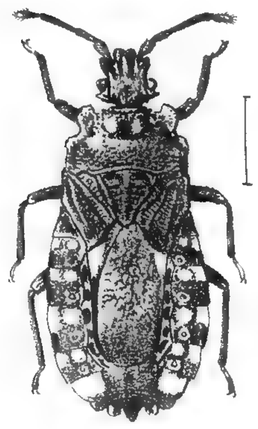

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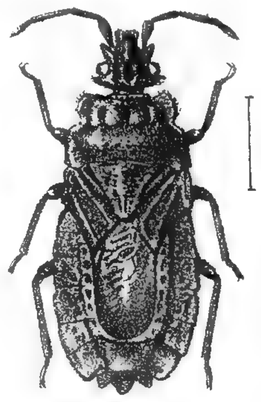

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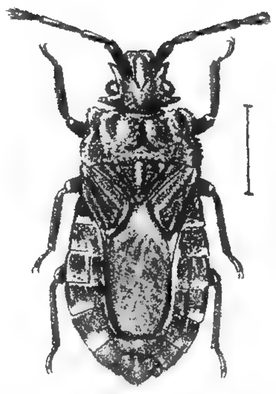

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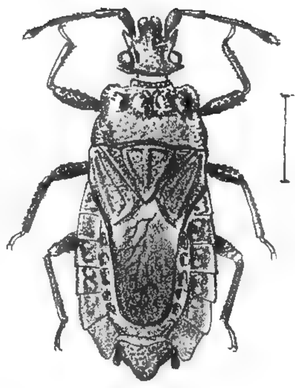
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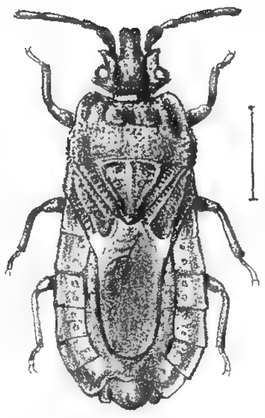
1,1a♀ PICTINUS ARMATUS.
2,2a♀ " SPINIGER.
3♂ " BREVICEPS.
4,5♀ " DENTICOLLIS.
6♀ " QUADRATICEPS.
7♂ " PARVICEPS.
8,8a♂ NANNIUM BITUBERCULATUM.
9♂ DYSODIUS LUNATUS.
10,10a♂ DYSODIUS CRENULATUS.
11♂,12♀ NANNIUM PARVUM.
13♂ DYSODIUS BREVIPES.
14♂ " AMPLIVENTRIS.
15♂ CINYPHUS EMARGINATUS.
16♂,17♀ " SUBTRUNCATUS.
18♂ " SQUALIDUS.
19♂ " LUTOSUS.
20♀ " ARMILLATUS.
21♀ ILLIBIUS LATICEPS.
22♀ LOBOCARA OVATA.
23♀ BRACHYRRHYNCHUS ABDOMINALIS.
24,25♀ " LÆVIVENTRIS
26♀ " SINUATUS.
27♂ " HANDLIRSCHI.
28♀ " LOBATUS.
29,29a♂ " LONGIPILIS.


1

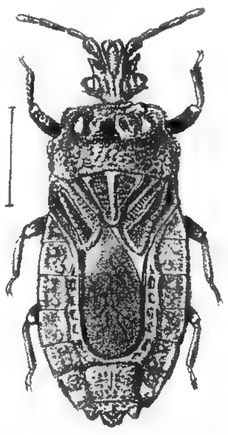

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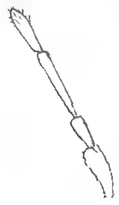

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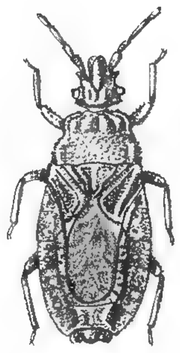

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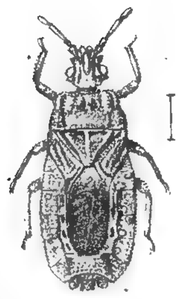

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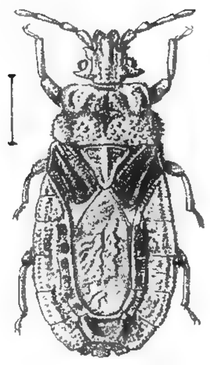

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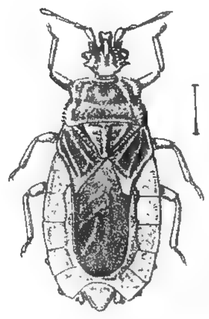

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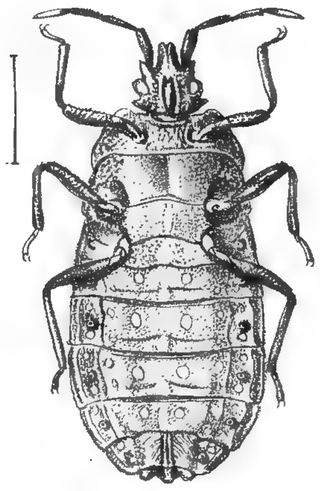

5a


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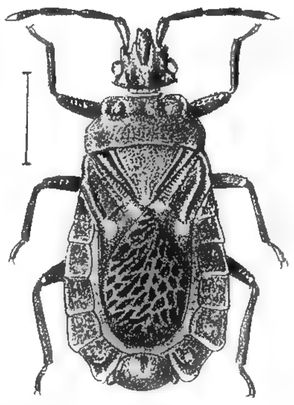

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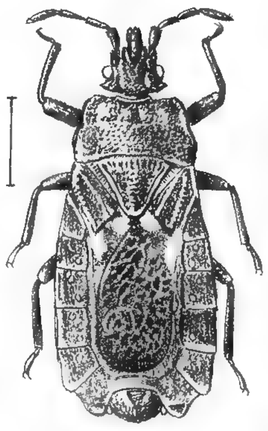

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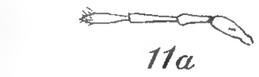

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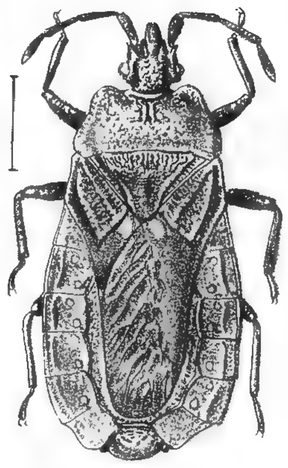
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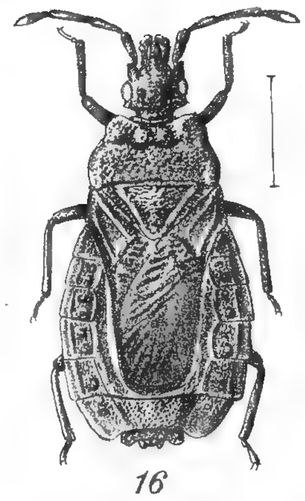

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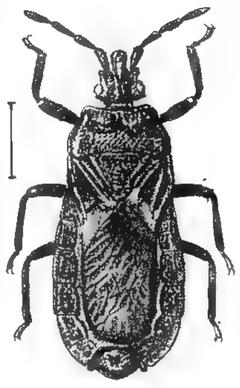

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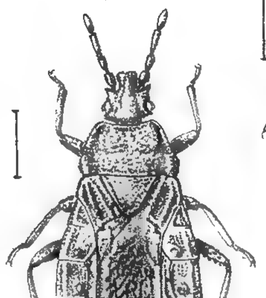

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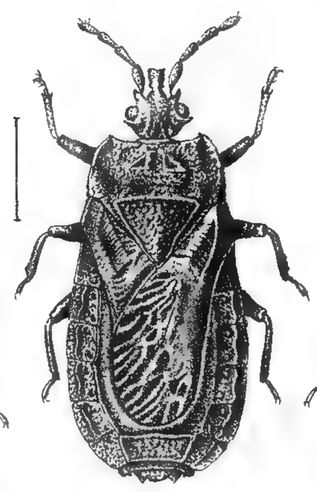

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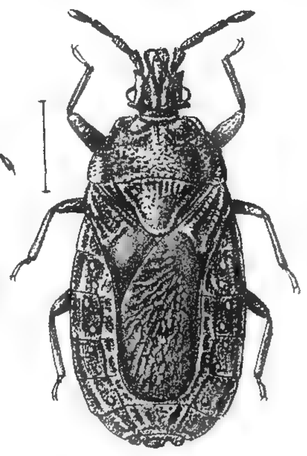

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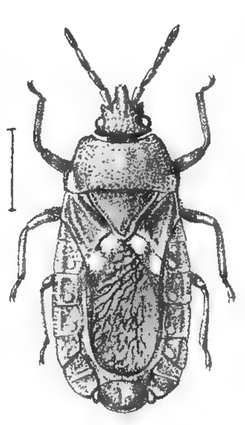

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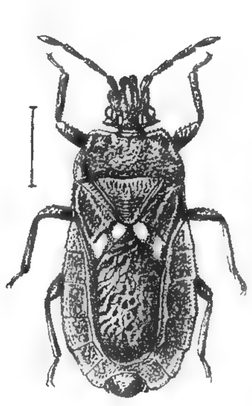

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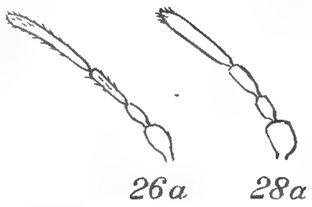

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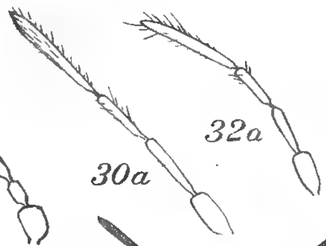

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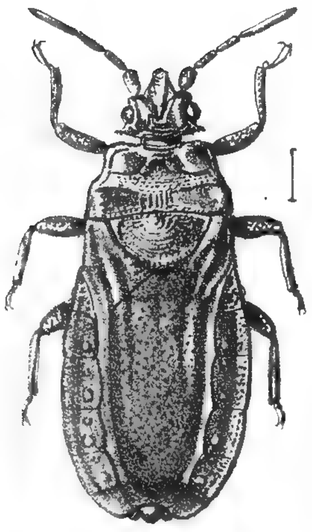

25a


27


26a 28a

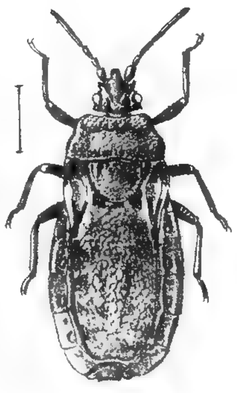

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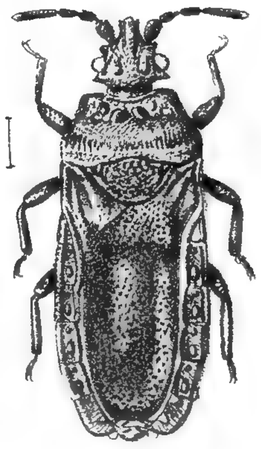

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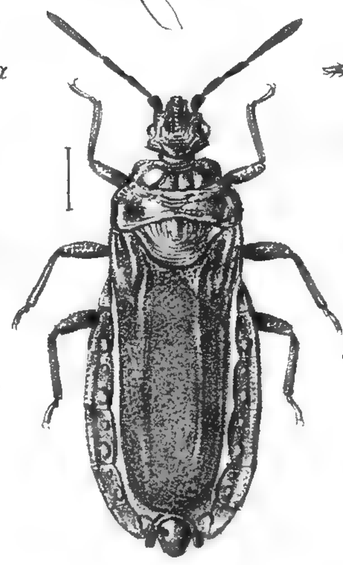

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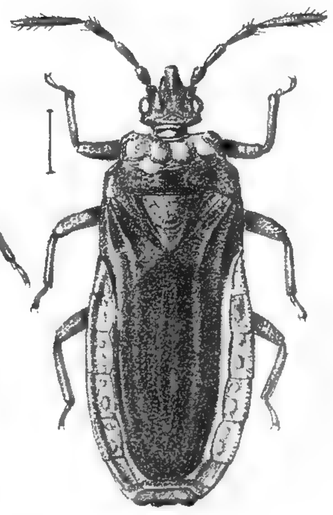

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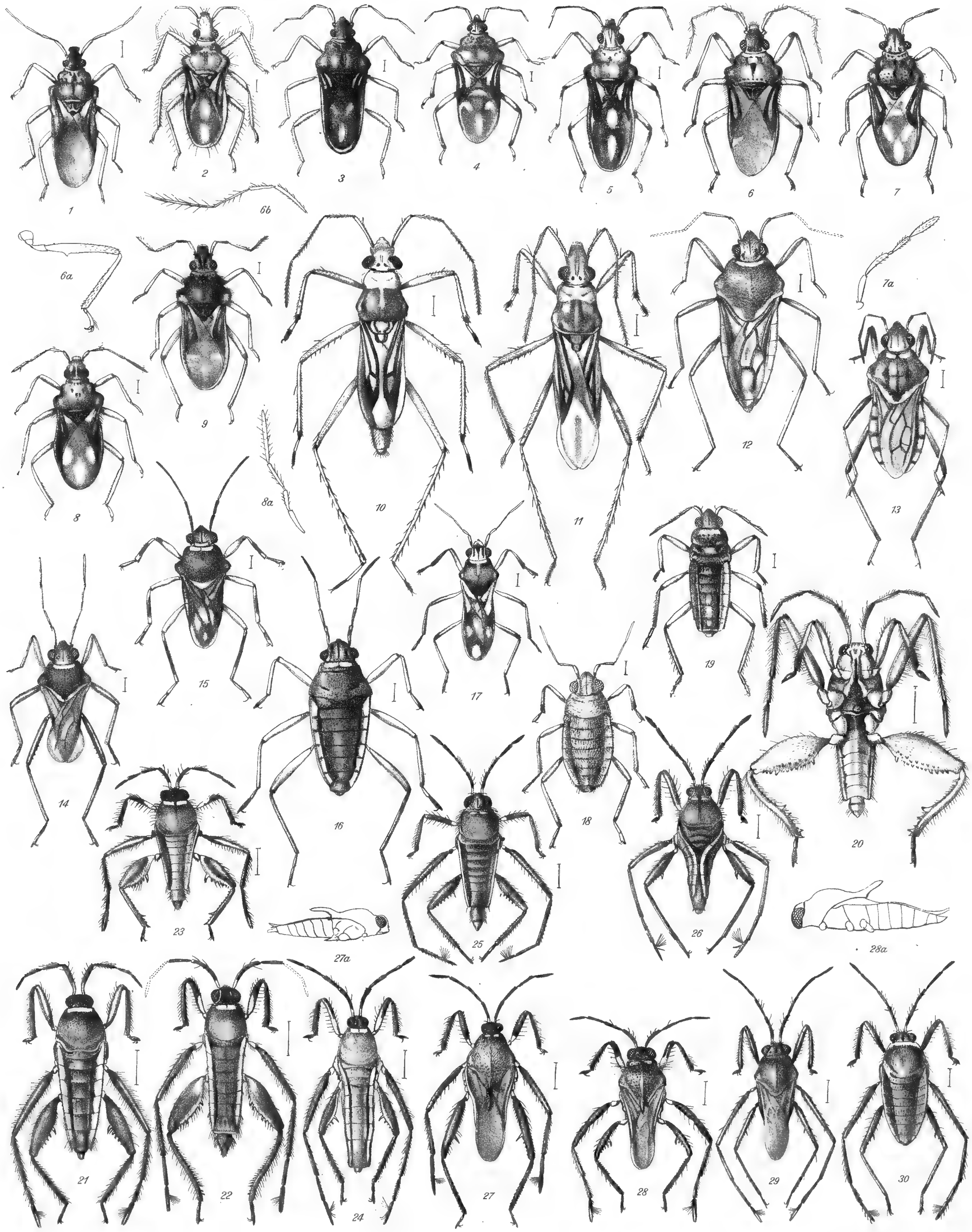

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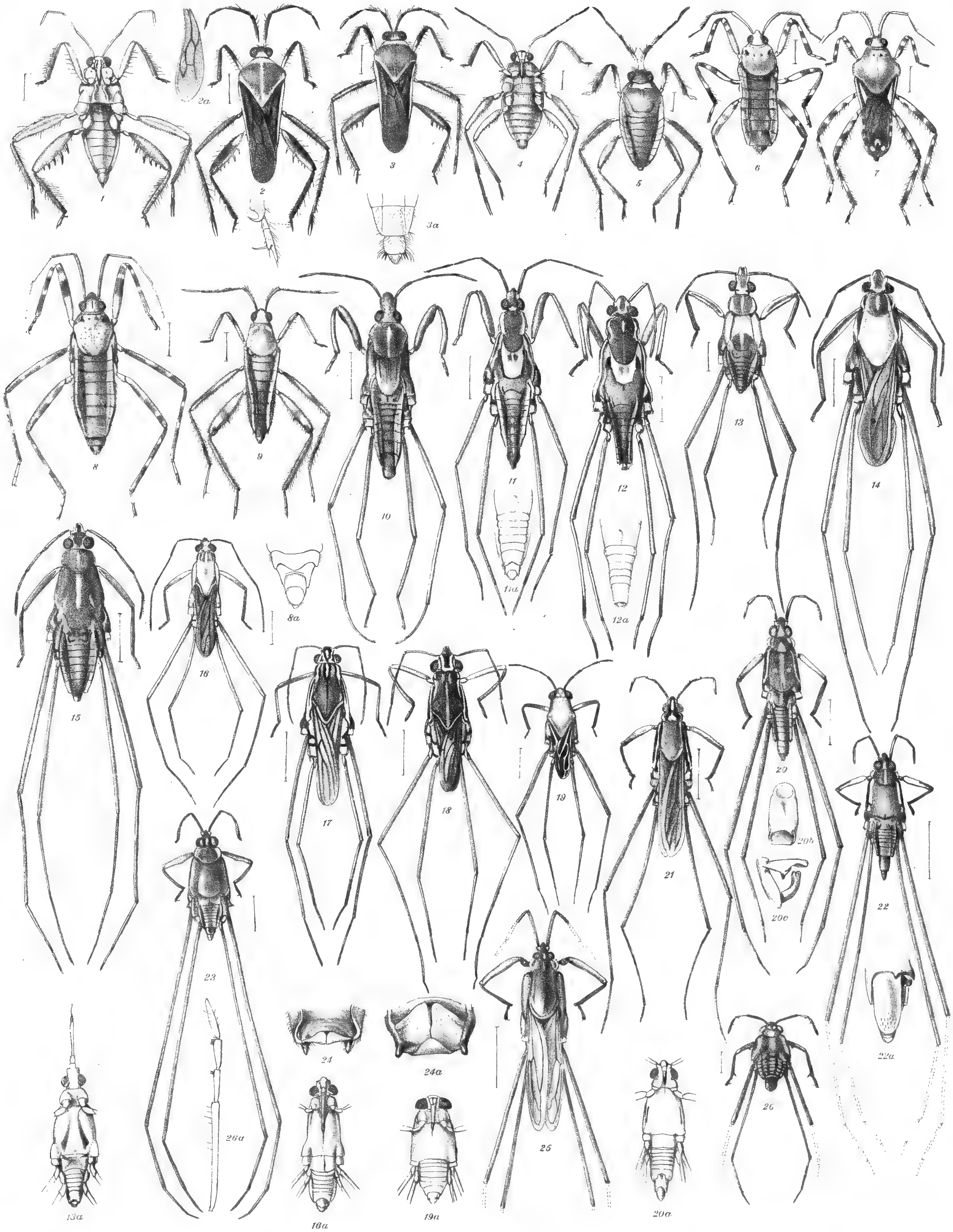
1,1a♀ BRACHYRRHYNCHUS MACULIVENTRIS.
2♀ " CONSTRICTUS.
3♂ " REGULARIS.
4♂ " NEOTROPICALIS.
5,5a♂ " EMARGINATUS.
6♀ " ANGUSTATUS.
7,7a♀ " RUGICORNIS.
8♀ " YUCATANUS.
9♀ " NANUS.
10♀ " DIVISUS.
11,11a♂ COLOBORRHYNCHUS PUMILIO.
12,12a♂,13♀ NEUROCTENUS BERGROTHI.
14♂ " TRIGONUS.
15♂ " DILATATUS.
16♀ " OVATUS.
17-17b♂,18♀ " LITIGIOSUS.
19♀ " PAPYRINUS.
20♀ " DISTANTI.
21♀ " NIGER.
22♂ NEUROCTENUS MEXICANUS.
23♂ " AMPLUS.
24♀ " UHLERI
25,25a♀ " SUBPARALLELUS.
26,26a♀ ANEURUS MONTANUS
27,♂ " MINUTUS.
28,28a♂ " TENUIS.
29,29a♂ " POLITUS
30,30a♂,31♀ " TENUICORNIS
32,32a♀ ANEUROSOMA DISSIMILE.

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1 HEBRUS MAJOR.
2 " HIRSUTUS.
3 " BILINEATUS.
4 " CONSOLIDUS.
5 " LÆVIVENTRIS.
6,6a,b ♂ " SULCATUS.
7,7a MERRAGATA HEBROIDES.
8,8a " LEUCOSTICTA.
9 " BREVIS.
10 ♂,11 ♀ MESOVELIA MULSANTI.
12 ♀ MICROVELIA FLAVIPES.
13 ♀ " PALUDICOLA.
14 ♂ " PANAMENSIS.
15 ♂ " TORQUATA.
16 ♀ " CIRCUMCINCTA.
17 ♂ " ALBONOTATA.
18 " RUFESCENS.
19 ♂ MICROVELIA SETIPES.
20 ♂,21 ♀ RHAGOVELIA CRASSIPES.
22 ♂ " VARIPES.
23 ♂ " FEMORALIS.
24 ♀ " ARMATA.
25 ♂ " DISTINCTA
26,27,27a ♀ " "
28,28a ♀ " SPINIGERA.
29 ♂,30 ♀ " TENUIPES.

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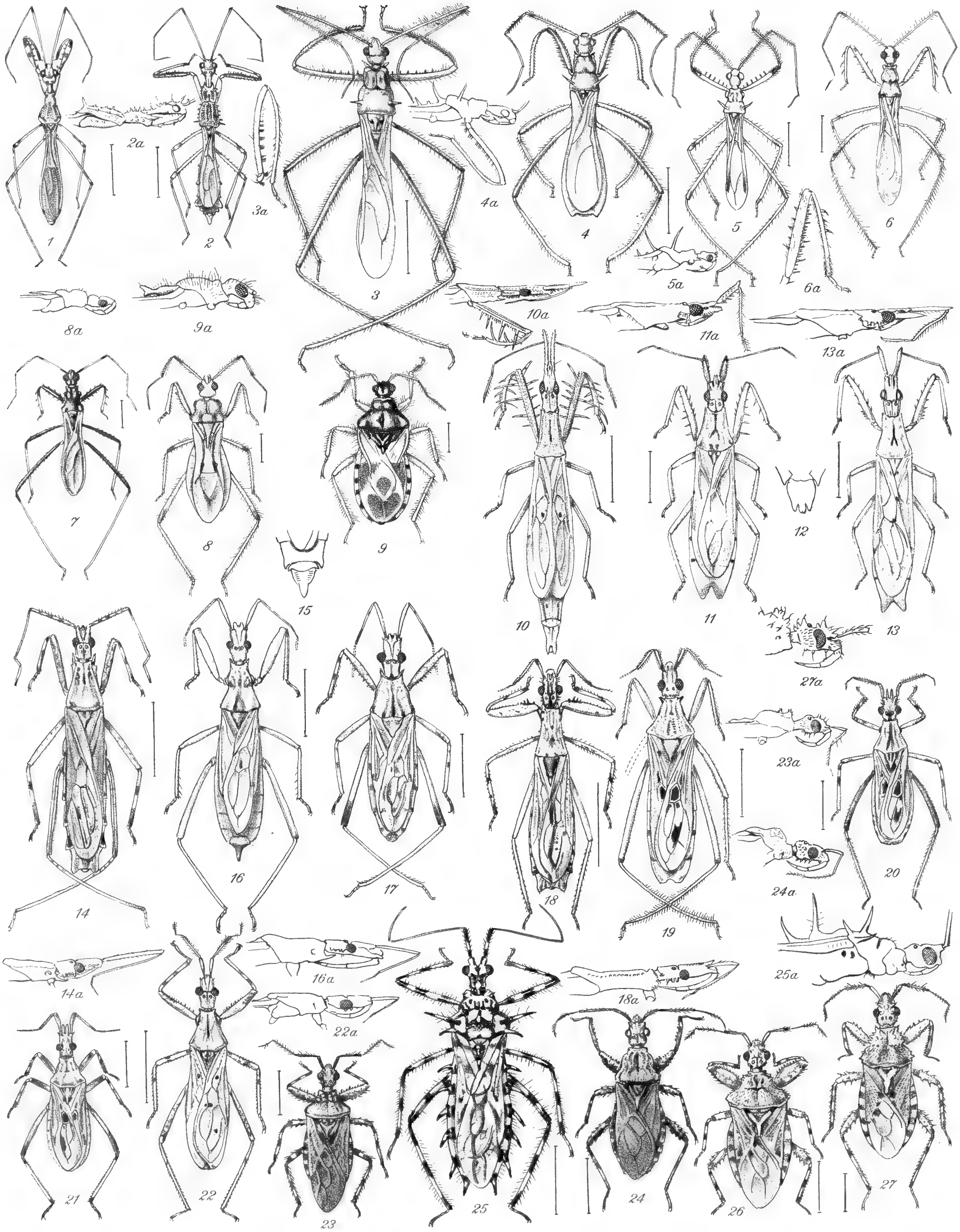


1♂ HAGOVELIA UNCINATA
2,2a♀ " "
3,3a♂ " INSULARIS.
4♂,5♀ TROCHOPUS SALINUS.
6♂,7♀ VELIA BRACHIALIS.
8,8a♂ " ANNULIPES
9♂ " CINCTIPES
10♂ GERRIS MEXICANUS.
11,11a♂ GERRIS CARINIVENTRIS
12,12a♀ " "
13,13a♂ " FLAVOLINEATUS.
14,15♀ " "
16,16a♂ LIMNOMETRA OPACA.
17♀ " QUADRILINEATA
18♂ LIMNOGONUS HYALINUS.
19,19a♂ BRACHYMETRA ALBINERVIS
20,20a–c♂ PLATYMORATES [illegible]
21♀ " "
22,22a♂ " [illegible]
23♂ PLATYGERRIS [illegible]
24,24a♀ " "
25♀ " CÆRULEUS
26,26a♂ TRIBOBATOPSIS [illegible]

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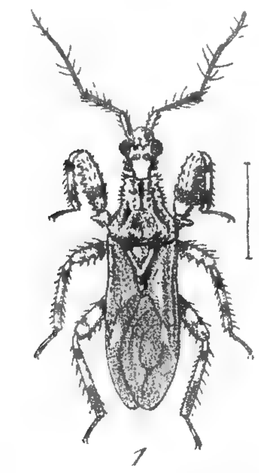
1 HENICOCEPHALUS CONCOLOR.
2 " ANNULIPES.
3 " PILOSUS.
4,4a " EMARGINATUS.
5 " ANGUSTATUS.
6 " CULICIS.
7,7a WESTERMANNIA ANNULATA.
8,8a " DIFFICILIS.
9,9a,b PLOIARIODES ARMATA.
10,10a♂ LUTEVOPSIS LONGIMANUS.
11,11a♂ " ORNATA.
12,12a♂ GARDENA AMERICANA.
13 EMESA LONGIPES.
14 " " *nymph.*
15,15a♂ GHILIANELLA IGNORATA.
16♀ " "
17,17a♂ GHILIANELLA BULBIFERA.
18♀ " "
19 " GRANULATA
20♂ " GIBBIVENTRIS.
21,21a PLOIARIOPSIS MEGALOPS.
22,22a " PRÆDATOR.
23 PLOIARIA SP.
24,24a LUTEVA MACROPHTHALMA.

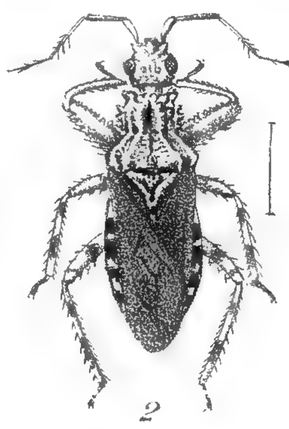
Edwin Wilson. Cambridge

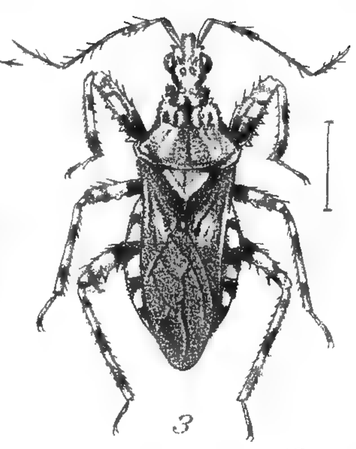


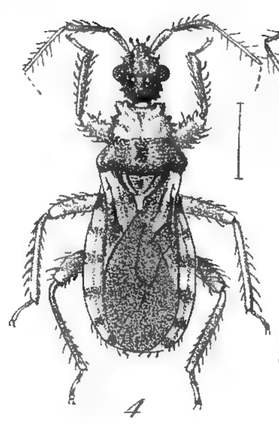
1♂ BACTRODES BIANNULATUS.
2,2a♀ " SPINULOSUS.
3,3a♂ SAICA RUBRIPES.
4,4a♀ " TIBIALIS.
5,5a♂ " ERUBESCENS.
6,6a♂ TAGALIS INORNATA.
7♀ " SEMINIGRA.
8,8a♀ ONCEROTRACHELUS ACUMINATUS.
9,9a♂ CHRYXUS TOMENTOSUS.
10,10a♀ PNIRONTIS SPINIMANUS.
11,11a♂ " INFIRMA.
12♀ " "
13,13a♂ " LANGUIDA.
14,14a♂ PYGOLAMPIS SPURCA.
15♀ " "
16,16a♀ GNATHOBLEDA FRAUDULENTA.
17♂ " LITIGIOSA.
18,18a♂ SCHUMANNIA MEXICANA.
19♀ NARVESUS CAROLINENSIS.
20♂ DIADITUS HIRTICORNIS.
21♂ " PICTIPES.
22,22a♂ APRONIUS OCTONOTATUS.
23,23a♂ NALATA QUADRITUBERCULATA.
24,24a♀ " NIGRESCENS.
25,25a♂ SALYAVATA VARIEGATA.
26♂ NALATA IRRORATA.
27,27a♂ " SPINICOLLIS.

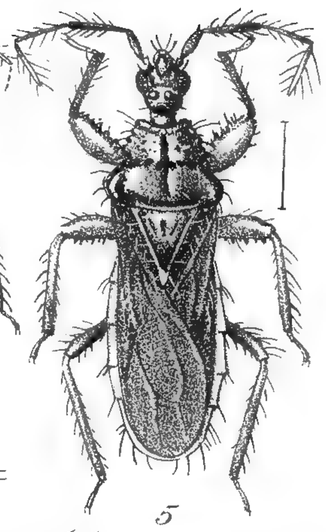
Edwin Wilson. Cambridge.

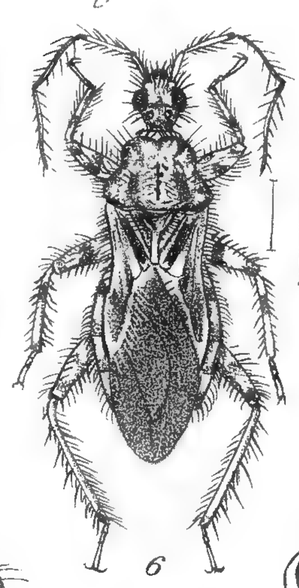

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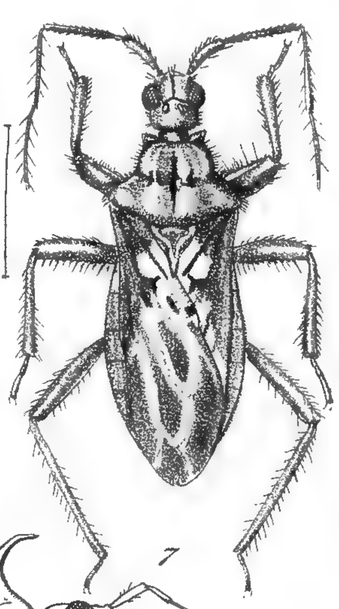

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4a

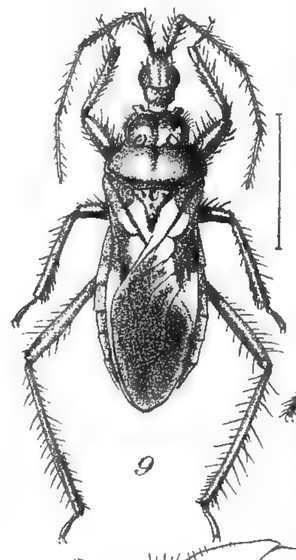

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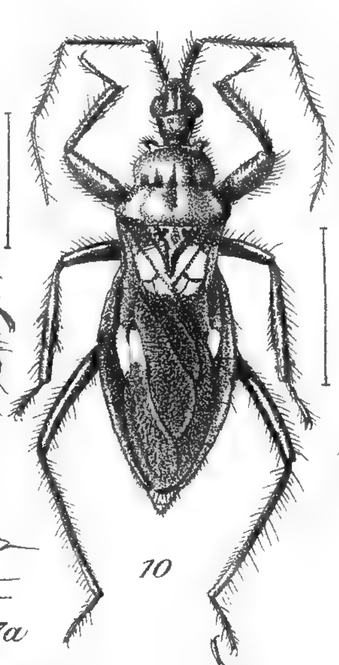

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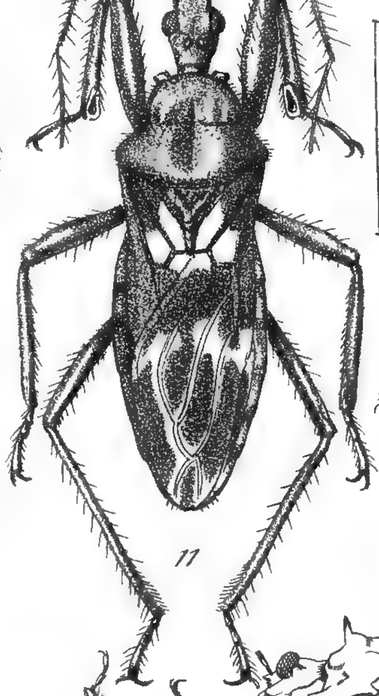

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16a

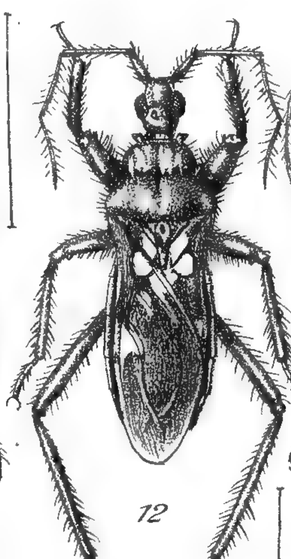

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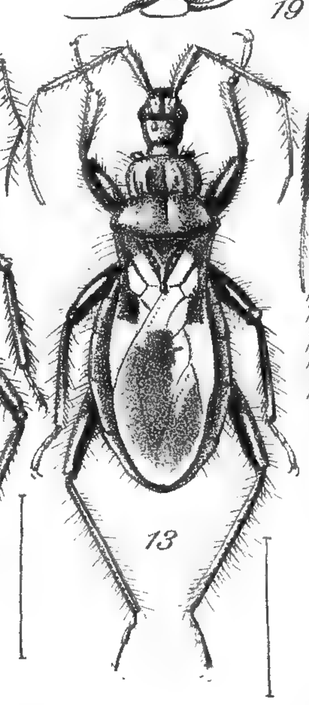

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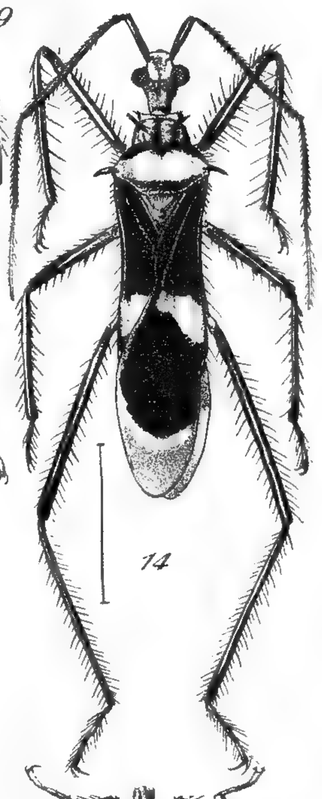

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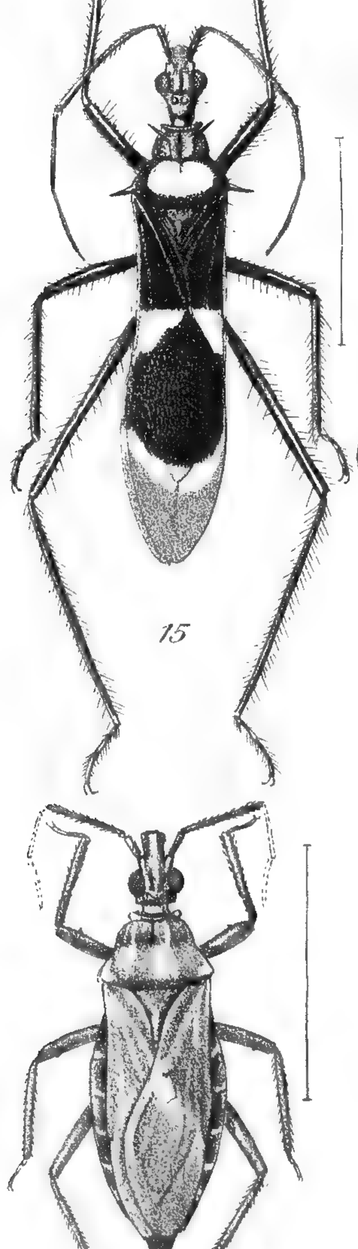

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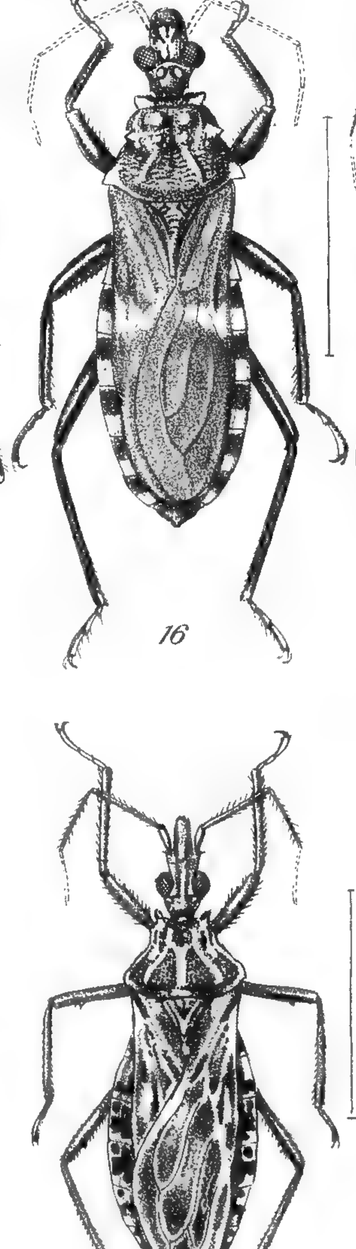

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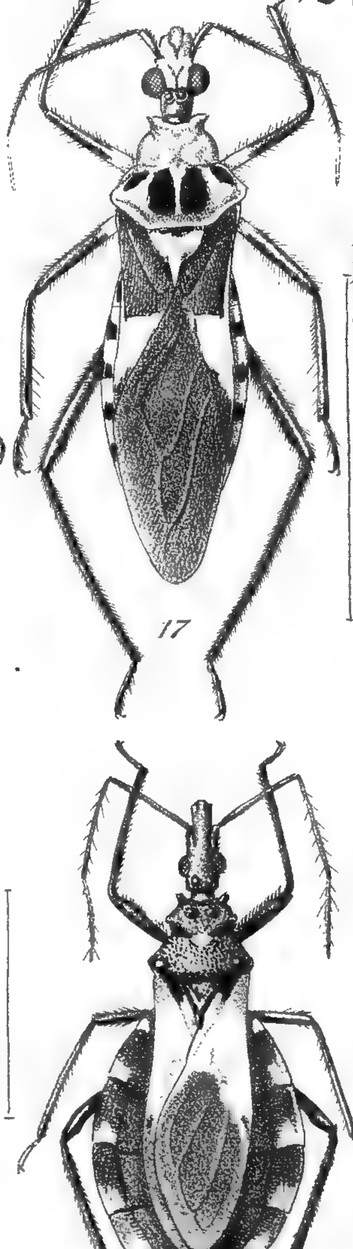

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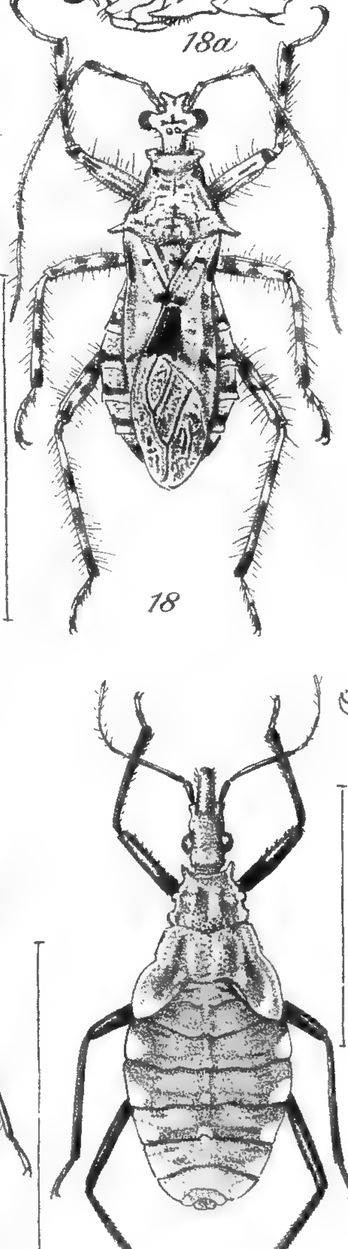

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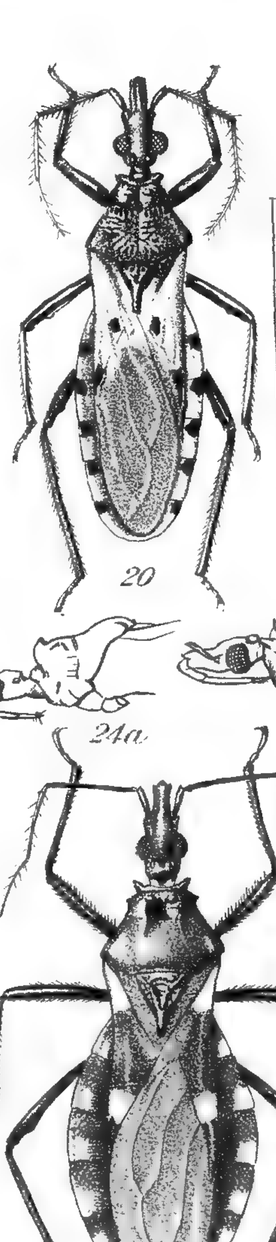

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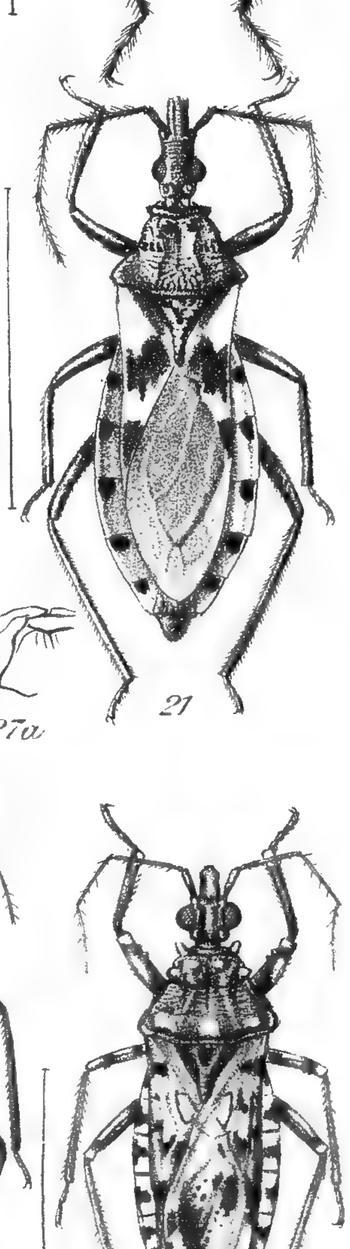

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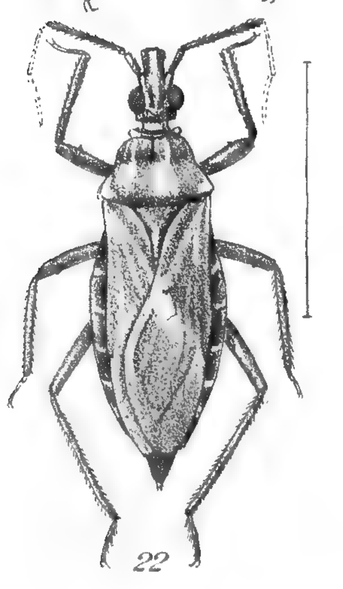

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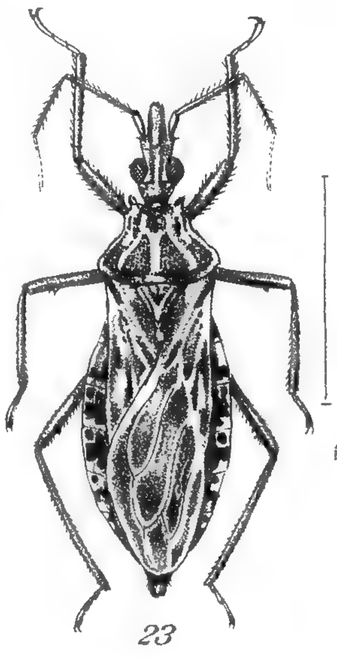

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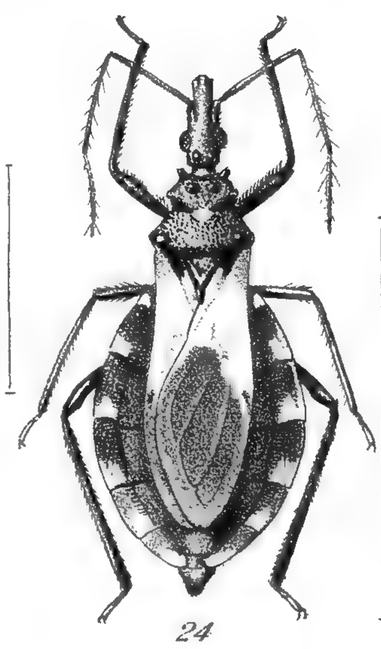

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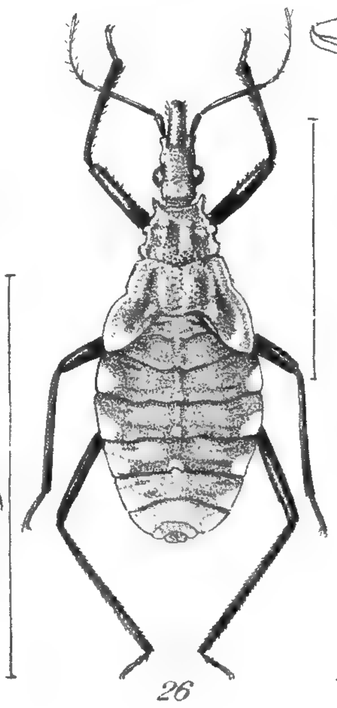

24a

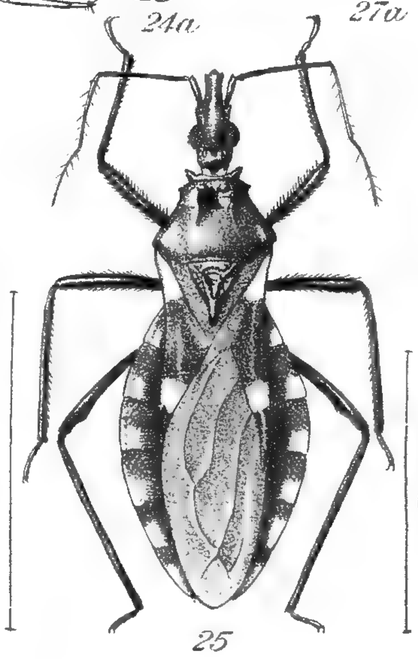

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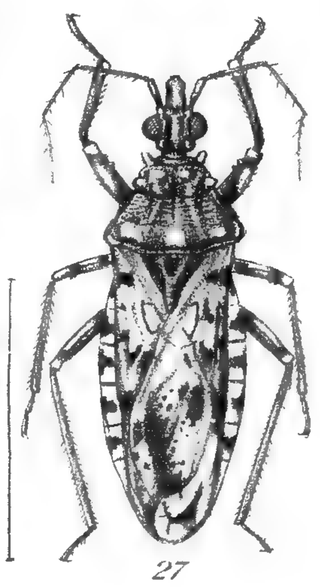

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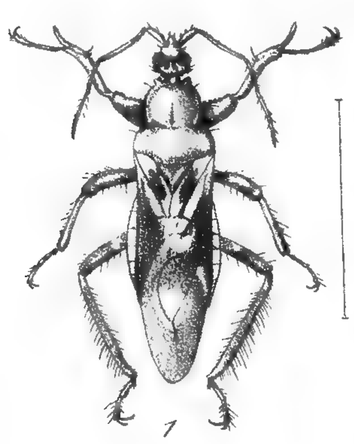

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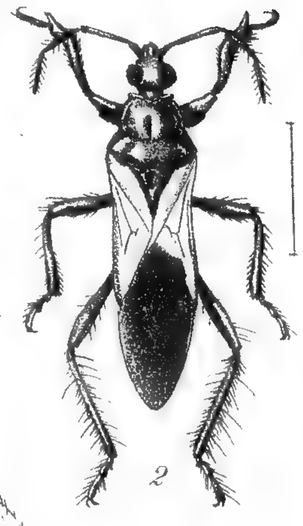

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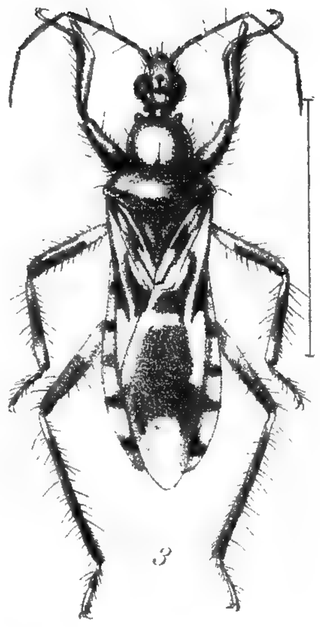

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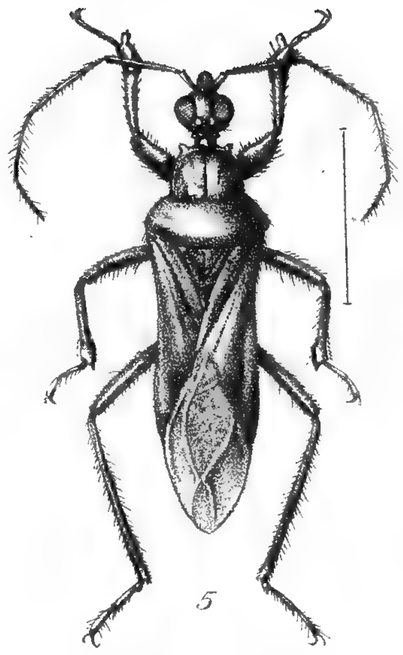
1,1a ♀ NALATA RUDIS.
2 ♂ ,, FUSCIPENNIS.
3 ♂ ,, SETULOSA.
4,4a ♀ MICROLESTRIA FUSCICOLLIS.
5 ♂ ,, LÆVIS.
6 ♂ ALLŒOCRANUM BIANNULIPES.
7 ♀ LEOGORRUS LITURA.
8,8a ♂ ARADOMORPHA CRASSIPES.
9 ♀ LEOGORRUS VENATOR.
10 ♀ LEOGORRUS LONGICEPS.
11,11a,b ♂ ,, FORMICARIUS.
12 ♂ ,, INTERRUPTUS.
13 ♂ ,, FASCIATUS.
14 ♂ SPINIGER FORMOSUS, *Var.*
15,15a ♀ ,, , *Var.*
16,16a ♀ ,, RUBROPICTUS.
17,17a ♀ ,, SUPERBUS.
18,18a ♀ MACROPHTHALMUS HISTRIONICUS.
19 MACROPHTHALMUS PALLENS *larva*
20 ♂ CONORRHINUS DIMIDIATUS.
21 ♀ ,, ,, *v.* MACULIPENNIS
22 ♀ ,, RUBROFASCIATUS, *Var.*
23 ♀ ,, VENOSUS.
24,24a ♀ MECCUS PALLIDIPENNIS.
25 ♂ ,, PHYLLOSOMA.
26 ,, ,, , *larva*
27,27a ♂ LAMUS RUFOTUBERCULATUS.

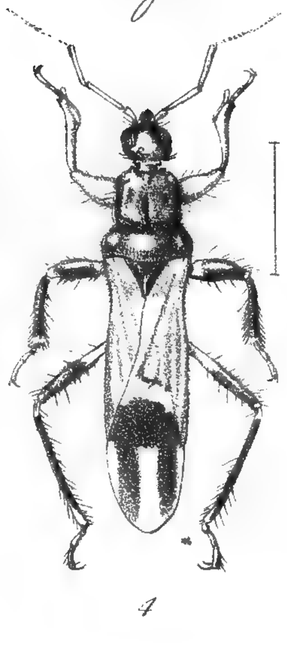
Edwin Wilson. Cambridge.

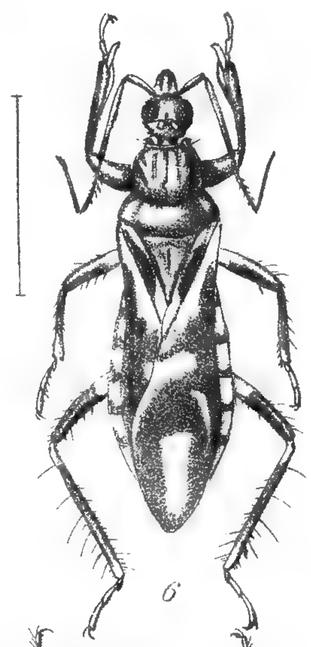

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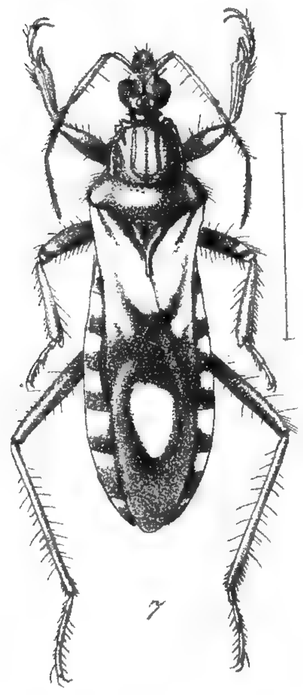

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3

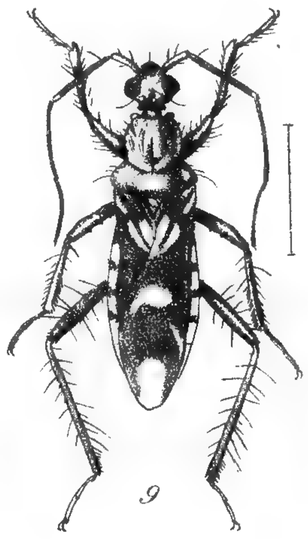

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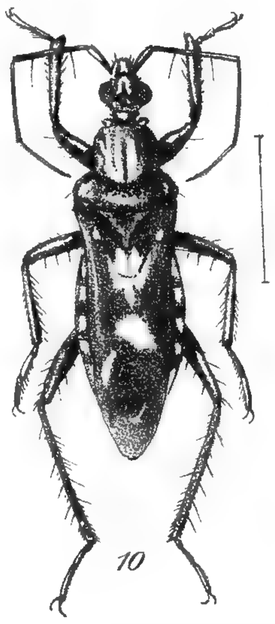

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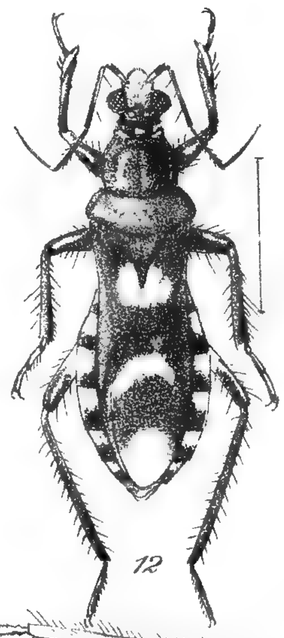

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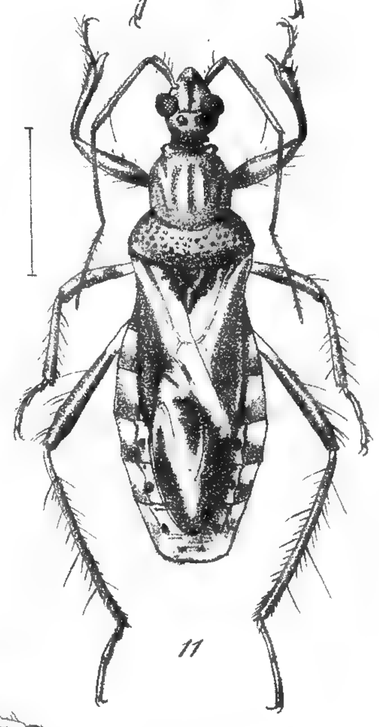

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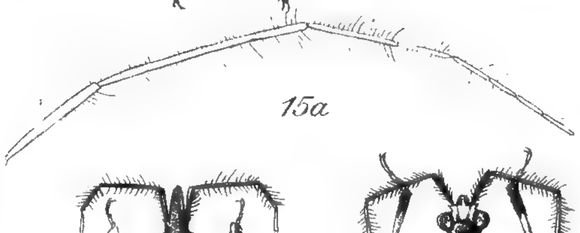

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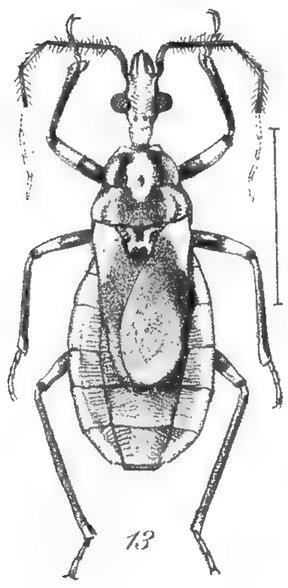

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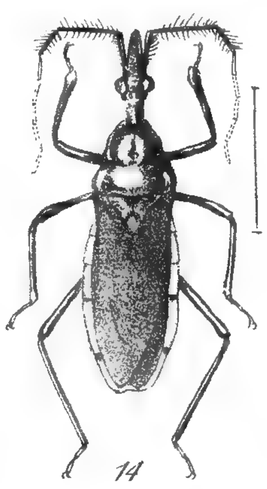

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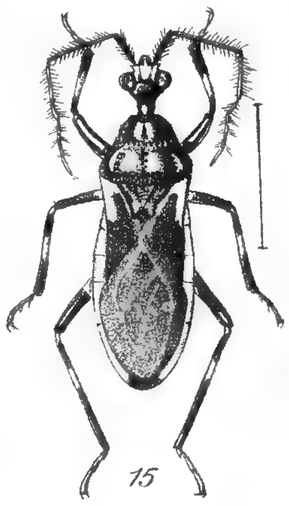

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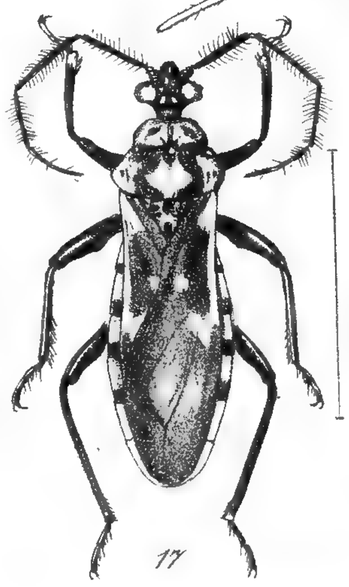

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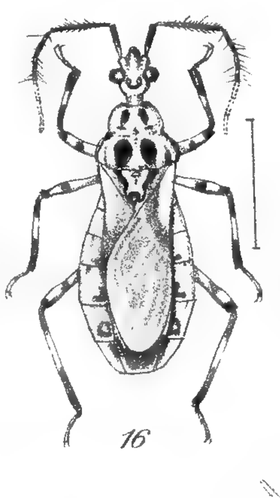

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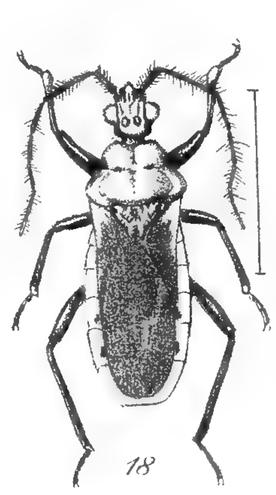

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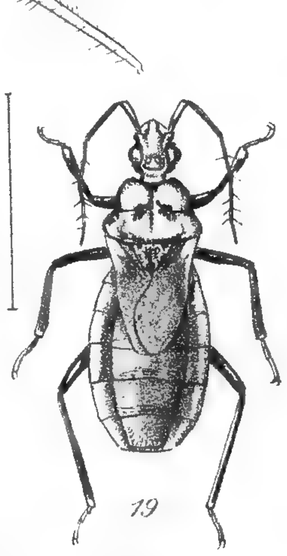

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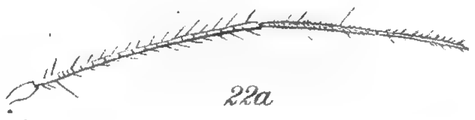

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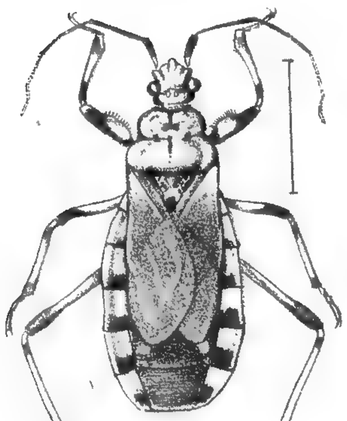

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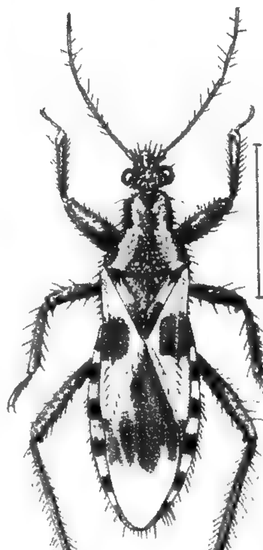

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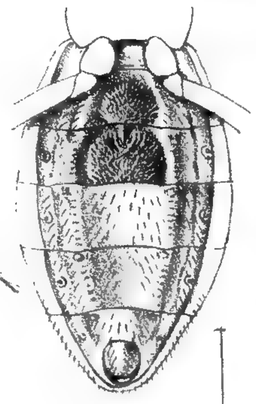

23a

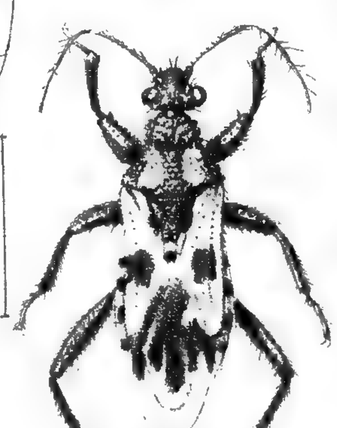

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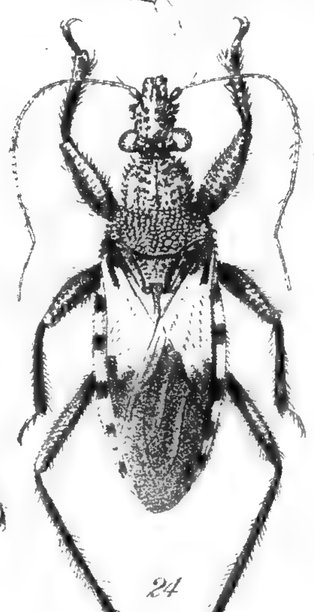

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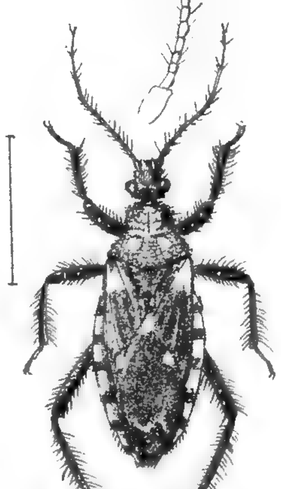

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24b

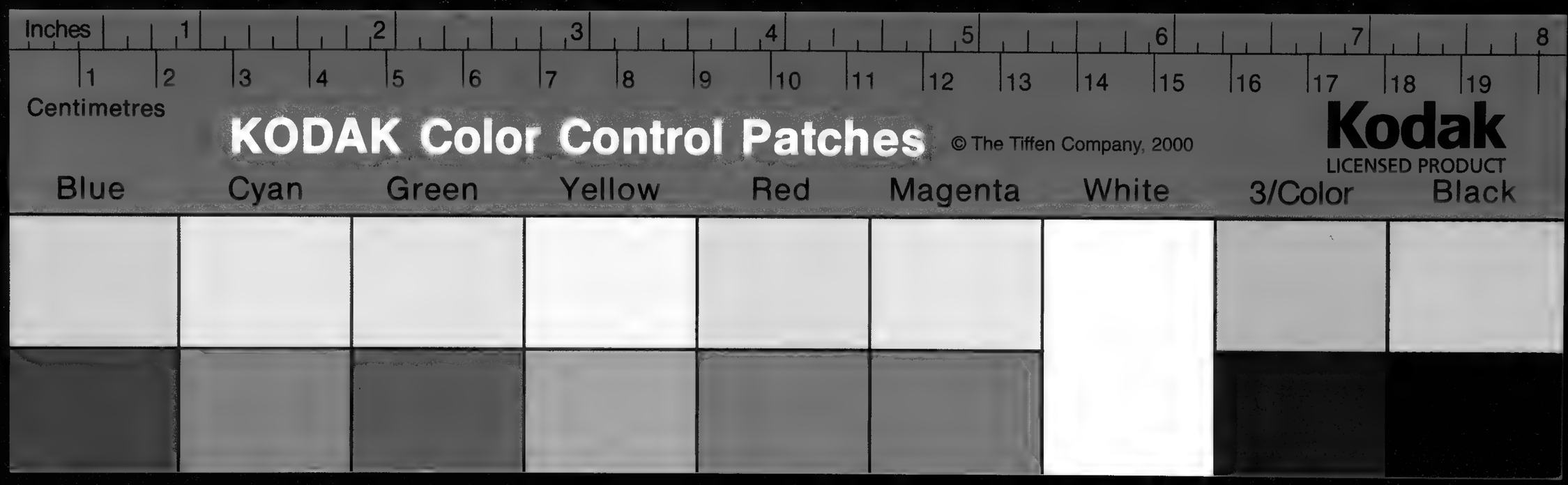

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24


24a
26

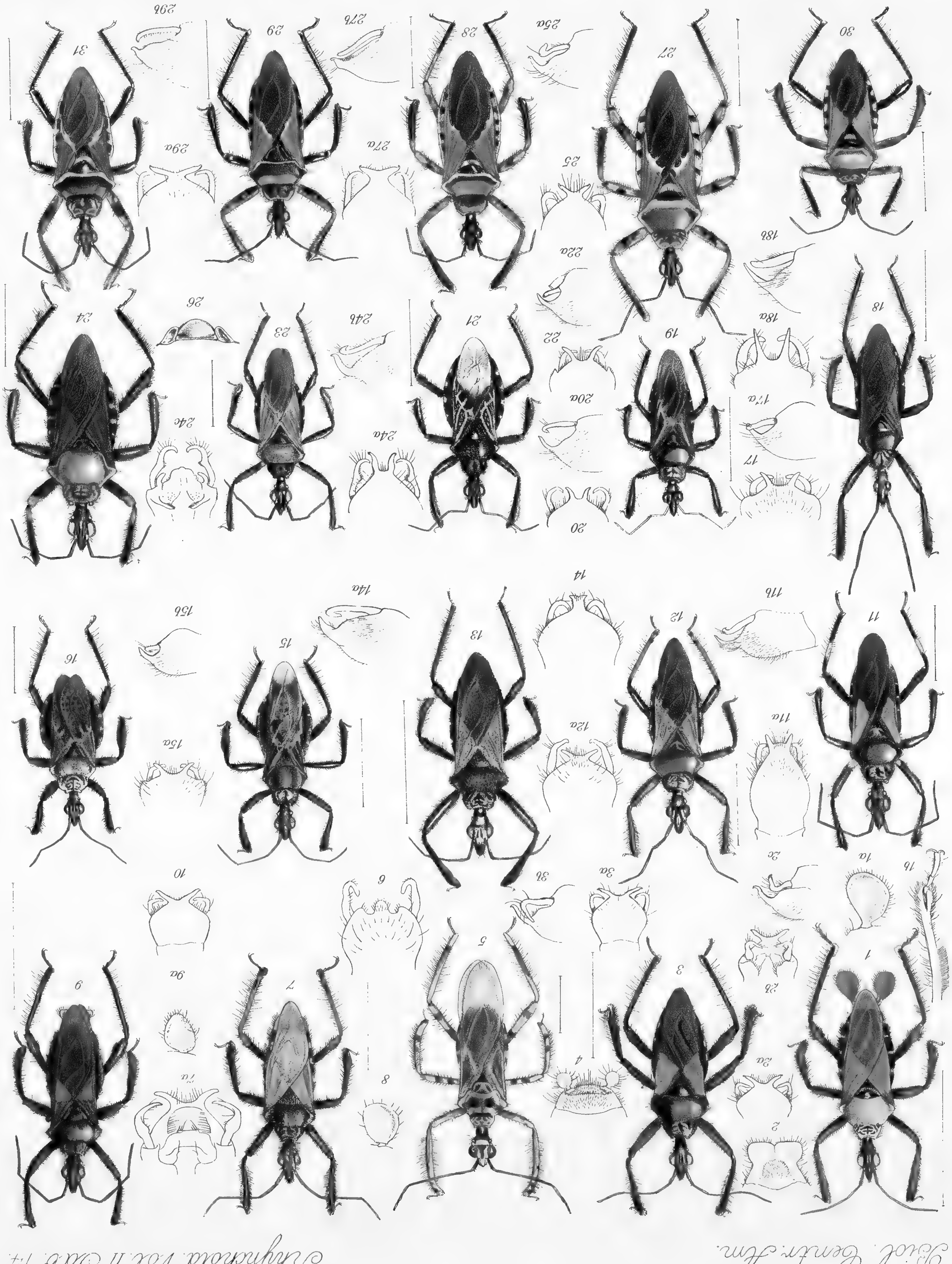
1 ♀ TYDIDES RUFUS
2 ♂ THYMBREUS CROCINOPTERUS.
3 ♀ RASAHUS ALBOMACULATUS.
4 ♂ PHORUS FEMORATUS.
5,5a ♂ MELANOLESTES MORIO
6 ♀ RASAHUS SULCICOLLIS.
7 ♀ " BIGUTTATUS
8 ♂ " HAMATUS.
9 ♂ " SCUTELLARIS.
10 ♂ RASAHUS GUTTATIPENNIS.
11 ♂ " BIFURCATUS.
12 ♀ " ARCIGER.
13 ♀ POTHEA BIVITTATA.
14 ♂ " LUGENS.
15,15a ♂ " ANNULIPES.
16 ♀ " MACULATA.
17,17a ♂ MINDARUS RUFONOTATUS.
18 ♂ ECTRICHODIA CRUDELIS
19 ♀ " " ,v. CRUCIFERA
20 ♂ " CINCTIVENTRIS.
21 ♀ " CRUCIATA, *var.*
22,22a ♂ HOMALOCORIS MACULICOLLIS.
23,23a ♂ " VARIUS.
24,24a,b ♂ HAMMATOCERUS LUCTUOSUS.
25 ♀ HOMALOCORIS BINOTATUS
26 ♀ " CUTTATUS.

Edwin Wilson. Cambridge.



Edwin Wilson Cambridge

1. 1a,b♀ APIOMERUS VEXILLARIUS. 12,12a♂ APIOMERUS SUBPICEUS 23♂ APIOMERUS RUBROCINCTUS, *v* NIGRIPES
2,2c–c♂ " " LANIPES. 24,24a–c♂ " EMARGINATUS.
3,3a,b♂,4♀ " FLATUS 15,15a,b♂ " TRISTIS. 25,25a♂,26♀ " SPISSIPES
5♀,6♂ AGRIOCORIS FLAVIPES. 16♀,17,17a♂ " IMMUNDUS. 27,27a,b♂ " FLAVIVENTRIS
7,7a♂,8♀ APIOMERUS OCCIROPTERUS. 18,18a,b♂ " LONGISPINIS. 28,29,29a,b♂ " PICTIPES, *var.*
9,9a♀,10♂ " PILIPES 19♀,20,20a♂ " MESTUS 30,31♀ " , *var.*
11,11a,b♂ " BINOTATUS 21♀,22,22a♂ " VENOSUS



Hemip. Heteropt. Am. *Rhynocoris. Vol. II Tab. 14.*

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

Edward Wilson Gambel, Type.

1. ♂ MELANAS PUNCTIPES
2. ♀ " SPINICOLLIS
3. ♀ " TURBERCULATUS
4. ♂ " INERMIS.
5. ♂ " ZEBRA
6. ♂ " " " VAR.
7. ♂ " " " VAR.
8. ♂ " RUFOFASCIATUS.
9. ♂ " MEXICANUS.
10. ♂ MILYAS LINEATIPES
11. ♀ " NIGROPICTUS
12. ♀ ZELUS TRIMACULATUS
13. ♀ " INCONSTANS.
14. ♂ " PICTIPES.
15. ♂ " RUFICEPS.
16. ♂ ♀ " GRASSANS.
17. ♀ " FASCIATUS
18. ♀ " " "
19. ♀ ZELUS " "
20. ♂ ♀ " " VAR.
21. ♀ " " SUBCOLLIS.
22. ♀ " " ATRIPES.
23. ♀ ♂ " " EXSANGUIS.
24. ♀ " " LAEVICOLLIS.
25. ♂ " " NUCAX.
26. ♂ " " NIGROMACULATUS.
27. ♂ " " PELTRACANTHUS.

1, 1a ♀ NOTOCYRTUS DORSALIS.
2 ♀ ,, ,, ,v. DROMEDARIUS.
3 ♂ ,, ,, ,v. FLAVOLINEATUS.
4, 4a ♀ ,, FOVEATUS.
5, 5a, b ♂ ,, BACTRIANUS.
6, 6a ♂ PIRNONOTA CONVEXICOLLIS
7 ♀ ,, ,,
8, 8a ♂ DEBILIA ANGUSTATA.
9, 9a ♂ ,, RUFESCENS.
10 ♂ RICOLLA SIMILLIMA.
11 ♂ REPIPTA FUSCIPES.
12 ♀ ,, NIGRONOTATA.
13 ♂ ,, TAURUS.
14 ♂ ,, FLAVICANS.
15 ♀ ,, SANGUINEA.
16 ♂ ,, GRACILIS.
17 ♂ ,, MUCOSA.
18, 18a ♂ REPIPTA MINIATA.
19 ♀ ROCCONOTA RUFOTESTACEA.
20 ♀ ,, LÆVICEPS.
21 ♂ ,, ANNULICORNIS.
22 ♂ ,, HYSTRICULA.
23 ♂ ,, TUBERCULIGERA.
24, 24a ♂ ,, OCTISPINA.
25, 25a ♂ SOSIUS FOLIACEUS.
26 ♀ LINDUS ERICIUS.

Edwin Wilson. Cambridge.

KODAK Color Control Patches © The Tiffen Company, 2000 Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Inches 1 2 3 4 5 6 7 8

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak
LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

Edwin Wilson. Cambridge.

1 ♀ GORGIA NIGRICORNIS.
2 ♂ " COSTARICENSIS.
3 ♀ CASTOLUS PLAGIATICOLLIS
4 ♂ " TRICOLOR
5 ♂ " TRINOTATUS.
6 ♀ " SUBINERMIS.
7 ♀ " RUFOMARGINATUS
8, 9 ♂♂ PHANEUS BRACONIFORMIS
10, 11 ♂♂ " " var.
12, 13 ♀♀ " " "
14 ♀ " SANGUINIVENTRIS, var.
15, 15a ♀ AMAZONOSCHIDRUS ALBOANNULATUS.
16 ♂ ATRACHELUS CINEREUS
17, 17a, 18 ♀ HEZA SIMILIS.
19, 19a ♂ ANOPLOCHELUS TENUISPINA.
20 ♀ " LAZA MULTISUTATA
21 ♂ " EUSCINERVIS.
22 ♂ " MONTANA NIGRIPES.
23 ♂ " SCUTELLARE.
24, 24a ♂ ARILUS GALLUS.
25, 25a ♀ " DEPRESSICOLLIS.
26 ♀ STICHERA RHOMBEA.
27, 27a ♂ " BIFASCIATA.

Ohio Geol. Surv.

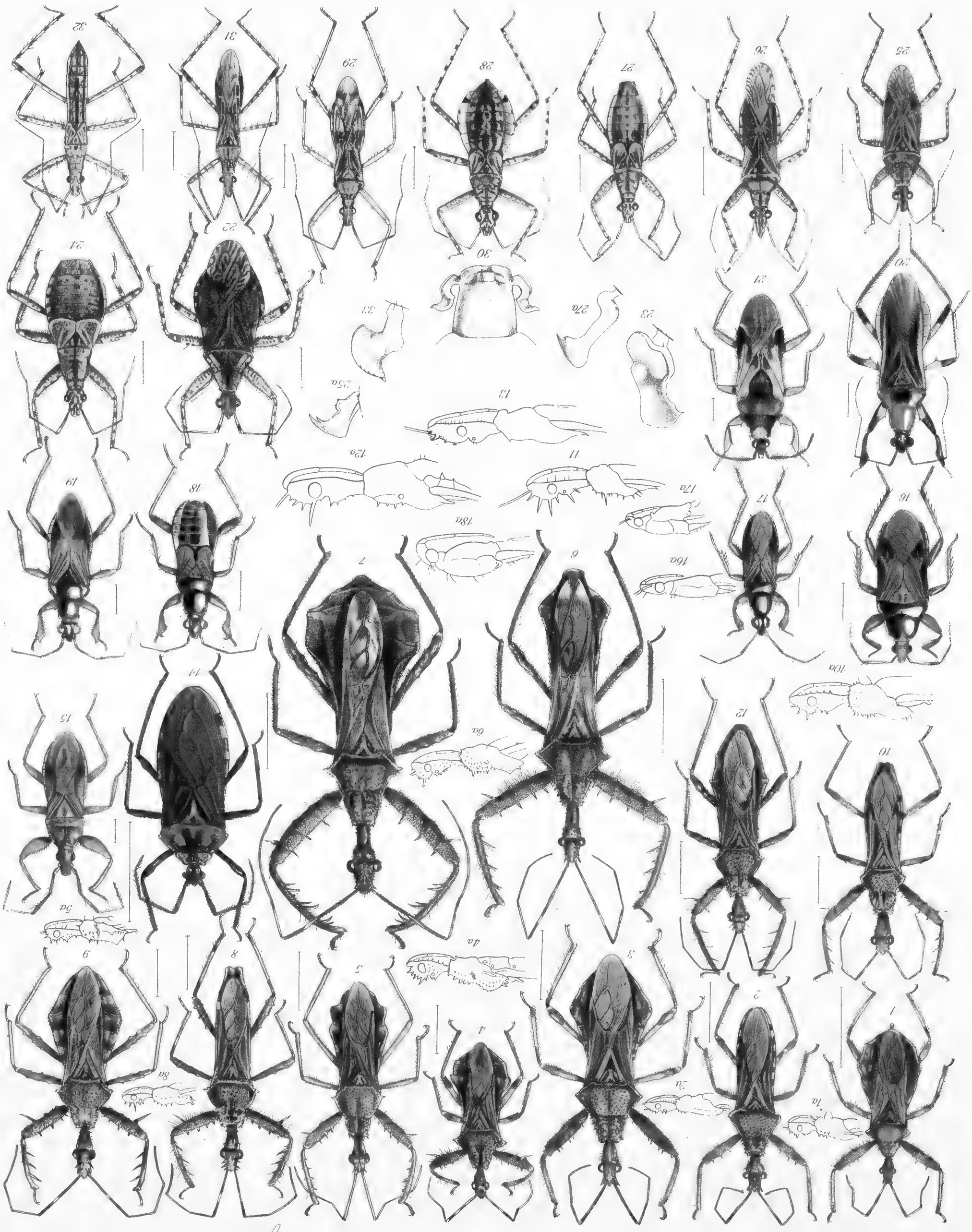
Arachnida. Vol. II Pl. 17

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak
LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

Edwin Wilson Cambridge.

1,1a♀ ACHOLLA AMPLIATA. 11♀ SINEA INTEGRA.
2,2a♂ " TABIDA. 12,12a♂ " SANGUISUGA.
3♀ " 13♂ " DEFECTA.
4,4a♀ SINDALA BREVIS. 14♀ VOLESUS NIGRIPENNIS.
5,5a♀ SINEA UNDULATA. 15 APHELONOTUS SIMPLUS.
6,6a♂ " CORONATA. 16,16a♀ PAGASA LUTEICEPS.
7♀ " " 17,17a♀ " FUSCA.
8,8a♂ " CAUDATA. 18,18a♂ " PALLIPES.
9♀ " " 19♀ ALLOEORHYNCHUS VITTATIVENTRIS.
10,10a♂ " RAPTORIA.

20 ALLOEORHYNCHUS TRIMACULA.
21♂ PHORTICUS COLLARIS
22♀,23♂ NABIS CRASSIPES.
24♂ " "
25,25a♂ " NIGRIVENTRIS.
26,27,27a♂ " SORDIDUS
28♀ " "
29♀,30♂ " CONSPRICTUS.
31,32♀ " SIGNATUS
33♂ " "



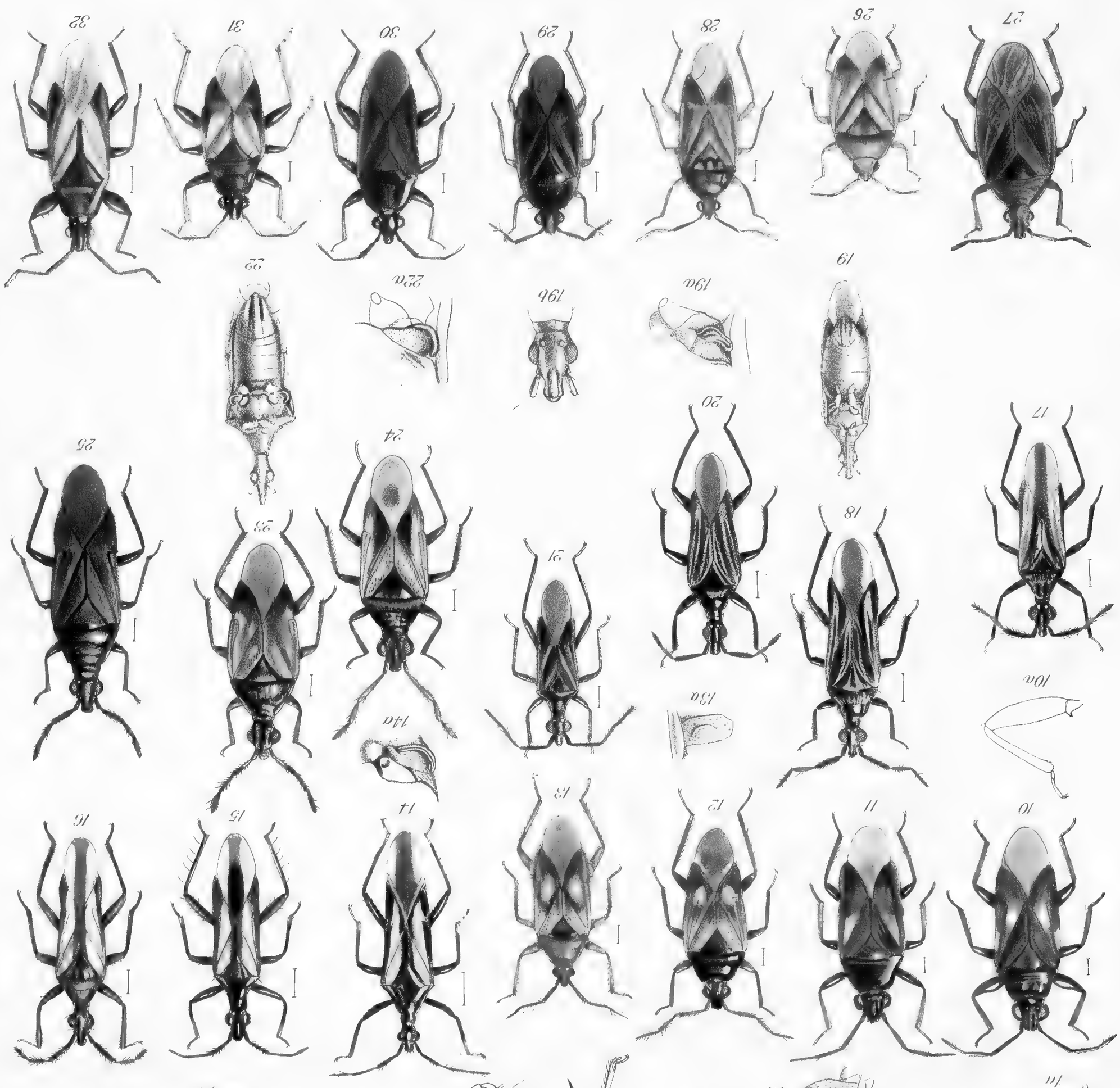
Stal. Centr. Hem.

Rhynchota. Vol. II. Tab. 18.

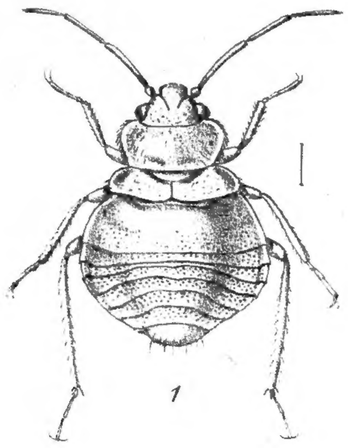
Inches 1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Centimetres
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak
LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

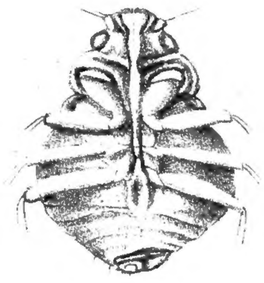
Fig. 1. Wilson Cranedge

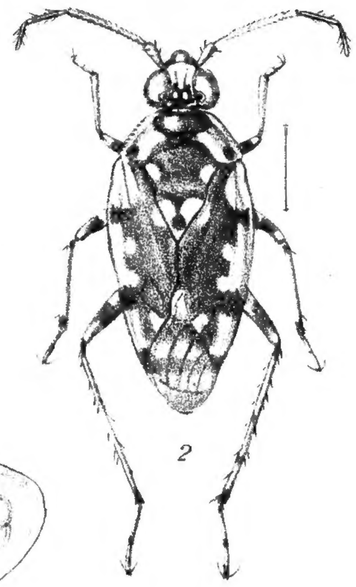
1	1a	LASIOCHILUS PUNCTIPENNIS	12	ACANTHENEMA NEBULOSA	25 ANTHOCORIS VARIEGATUS
2		" REUTERI	13,13a	" BIPUNCTATA	24 " CAPSIFORMIS
3		LASIOCHILOIDES DENTICULATUS	14,14a ♀	MACROTRACHELIA LONGIVENTRIS	23♀ " DENTIPES
4	4a ♀	CARTHASIS RUFONOTATUS	15 ♀	" ALBOVITTATA	26 PARATHYPHLEPES LAEVISCULUS
5	♂	LASIOCOLPUS SINUATICOLLIS	16 ♂	" NITIDA	27 MELANOCONIS CIRCUMCINCTUS
6	6a ♂, 7 ♀	EULASIOCOLPUS MEGALOPS	17 ♂	" TRIRHIPHORMIS	28 CARDIASTETHUS TRICHICALIS
7		LASIOCOLPOIDES CILIATUS	18 ♂	" NIGRONITENS	29 " LIMBATELLUS
8	8a ♂	EULOCHIOCOPS LONGICORNIS	19,19a,b ♀	"	30 SOLENONOTUS SULCIFER
9	9a ♂	"	20 ♀	" ORACIPENNIS	31 " NIGRONASCINAEFORMIS
10	10a ♂	EUZONETHUS ALBONOTATUS	21 ♂	MACROTRACHELIA LAEVIS	32 SCYTOCEPHALUS FLAVICORNIS
11		" MARGULARIS	22,22a ♀	"	

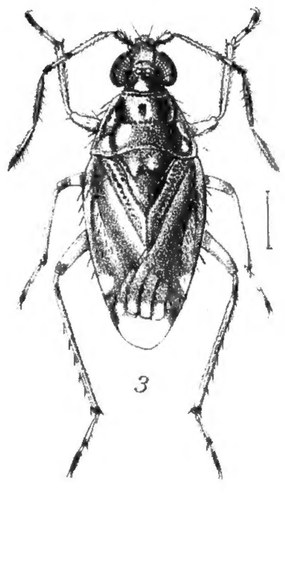


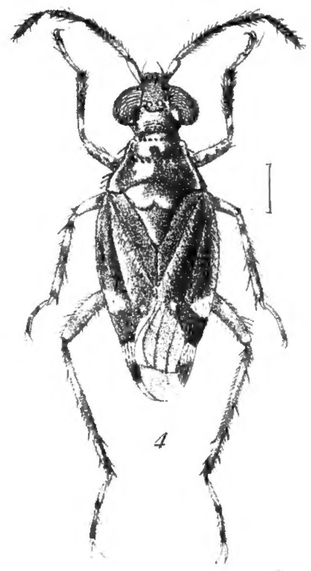
Stark Centr. chm. *Rhynchota. Vol. II. Tab. 19.*

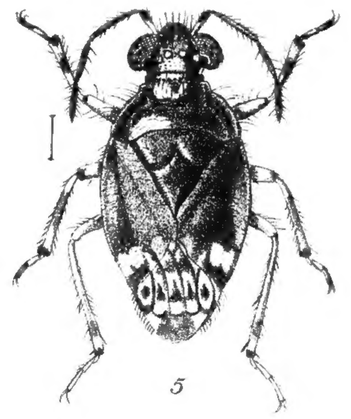

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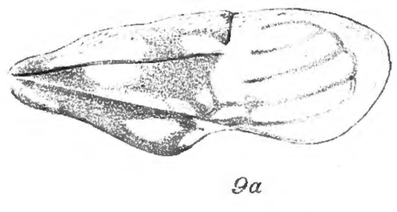

1a

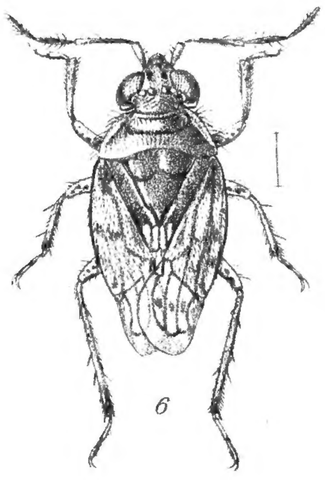

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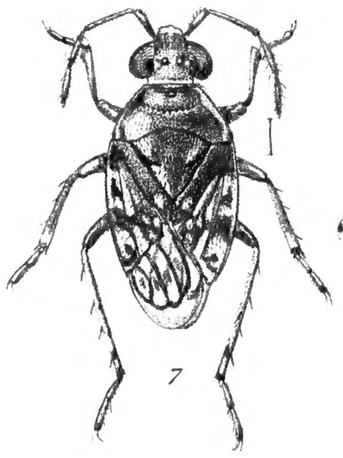

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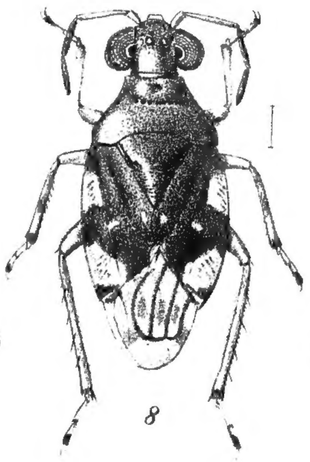

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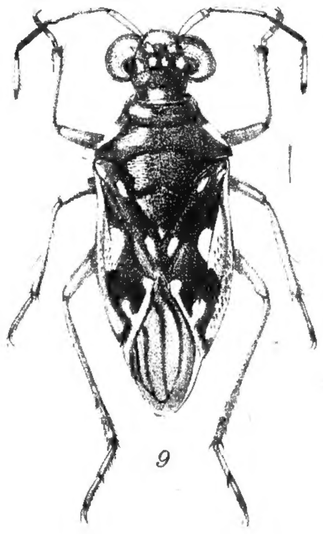

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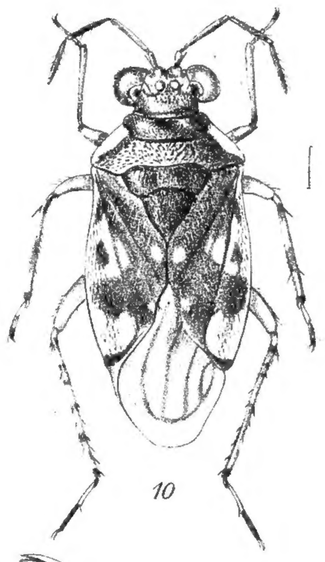

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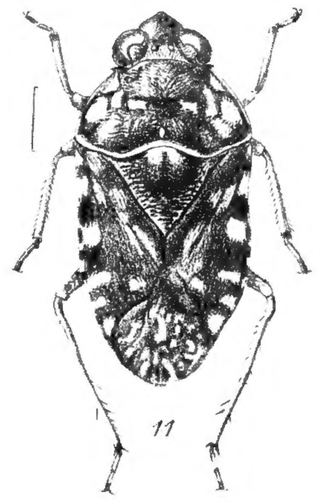

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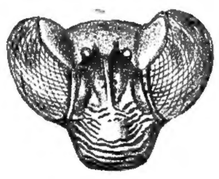

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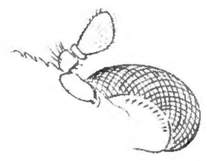

10


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13a


15a


17a


17

12

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14

15

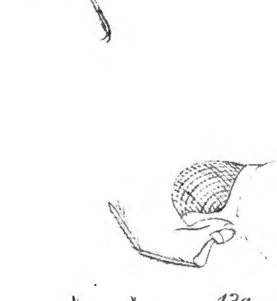
16

18


21b

21a

25


27

27a

22a


22b

24

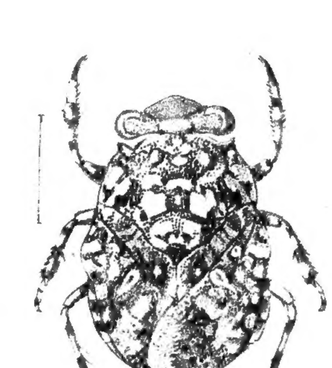
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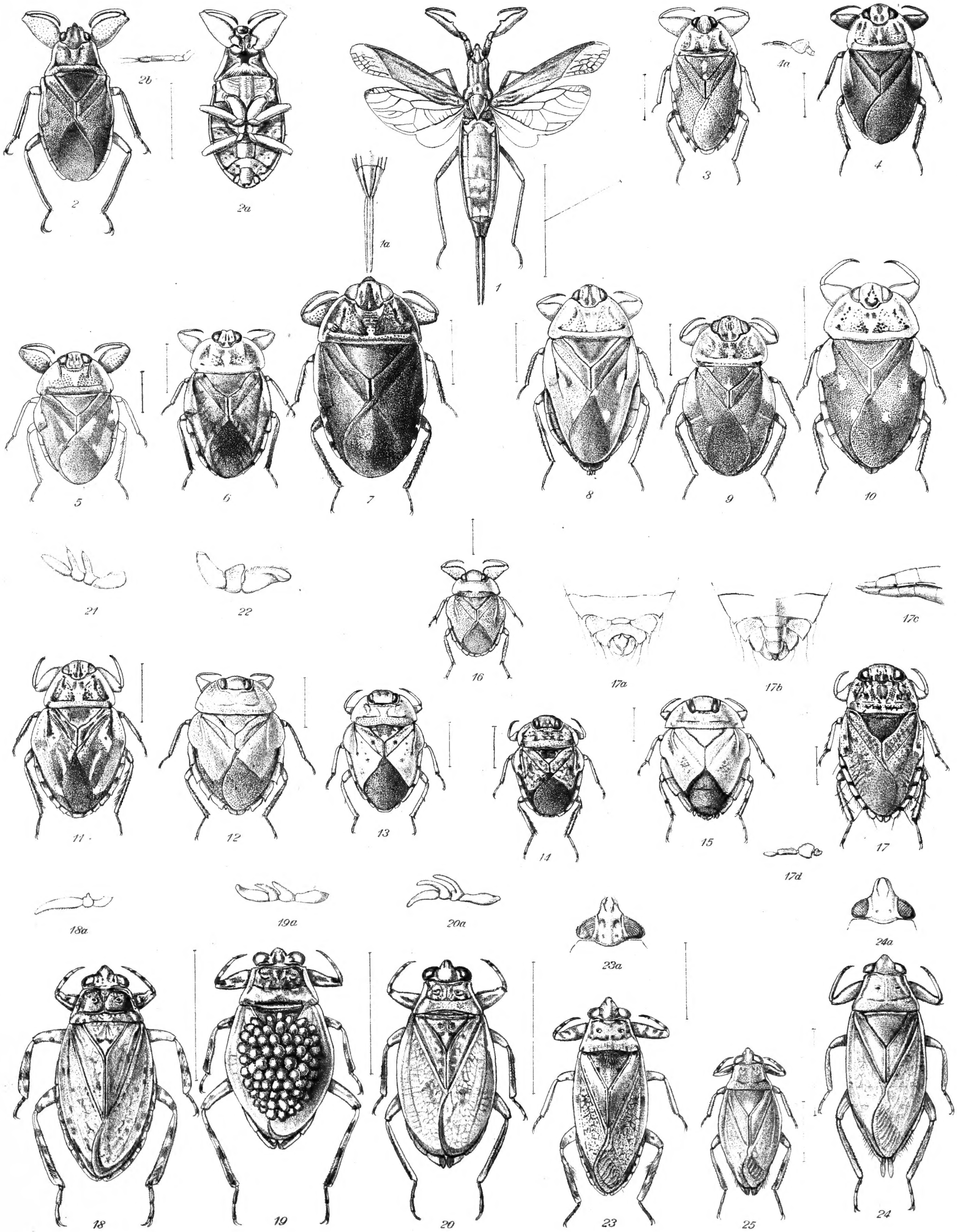

23

1,1a♂ HÆMATOSIPHON INODORA.
2 SALDA SIGNORETI.
3 ” LÆVIS.
4 ” SULCICOLLIS.
5 ” OPACIPENNIS.
6 ” COMATA.
7 ” TROPICALIS.
8 ” QUADRIMACULATA.

9,9a SALDA VENTRALIS.
10 ” ABDOMINALIS.
11♀ PELOGONUS PERBOSCI.
12♀ ” ÆNEIFRONS.
13,13a♂ ” ”
14♂ ” VIRIDIFRONS.
15,15a♀ ” ACUTANGULUS.
16♀ GELASTOCORIS BUFO.
17,17a♂ ” ”

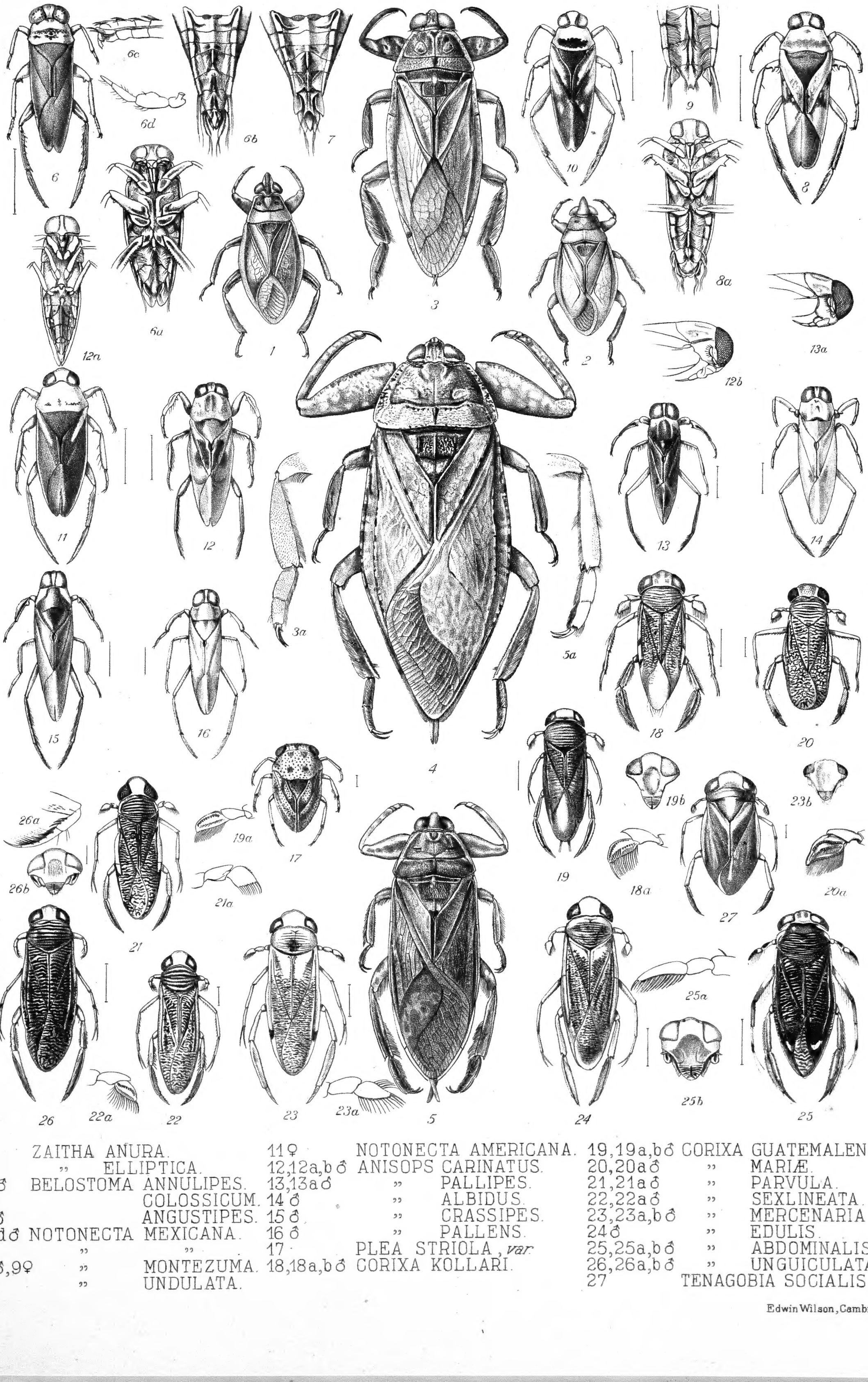
18♀ GELASTOCORIS ROTUNDATUS.
19♀,20♂ ” VARIEGATUS.
21,21a,b♀ MONONYX FUSCIPES.
22,22a,b♂ ” ”
23 ” ” *(nymph)*.
24♂,25♀ ” NEPÆFORMIS.
26♂ ” AMPLICOLLIS.
27,27a. ” RAPTORIUS.

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1,1a♂ CURICTA SCORPIO.
2,2a,b♀ CRYPHOCRICUS MACROCEPHALUS.
3♂ AMBRYSUS OBLONGULUS.
4,4a♂ " PULCHELLUS.
5♂ " PUDICUS.
6♀ " PARVICEPS.
7♂ " MELANOPTERUS.
8♀ " MEXICANUS.
9♂ AMBRYSUS HYBRIDUS.
10♀ " GUTTATIPENNIS.
11♂ " SIGNORETI.
12♀ LIMNOCORIS STÅLI.
13♂ " SIGNORETI.
14♀ " INORNATUS.
15♂ " VIRESCENS.
16♀ " INSULARIS.
17,17a-d♂ PELOCORIS FEMORATUS.
18,18a♀ DEINOSTOMA DILATATUM.
19,19a♂ ABEDUS OVATUS.
20,20a♀ " BREVICEPS.
21 " SIGNORETI.
22 PEDINOCORIS MACRONYX.
23,23a♂ ZAITHA FUSCIVENTRIS.
24,24a♂ " MINOR.
25♂ " MICANTULA. *var.*

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1 ♂ ZAITHA ANURA.
2 ♂ " ELLIPTICA.
3,3a ♂ BELOSTOMA ANNULIPES.
4 ♂ " COLOSSICUM.
5,5a ♂ " ANGUSTIPES.
6,6a-d ♂ NOTONECTA MEXICANA.
7 ♀ " "
8,8a ♂, 9 ♀ " MONTEZUMA.
10 ♂ " UNDULATA.
11 ♀ NOTONECTA AMERICANA.
12,12a,b ♂ ANISOPS CARINATUS.
13,13a ♂ " PALLIPES.
14 ♂ " ALBIDUS.
15 ♂ " CRASSIPES.
16 ♂ " PALLENS.
17 PLEA STRIOLA, *var.*
18,18a,b ♂ CORIXA KOLLARI.
19,19a,b ♂ CORIXA GUATEMALENSIS.
20,20a ♂ " MARIÆ.
21,21a ♂ " PARVULA.
22,22a ♂ " SEXLINEATA.
23,23a,b ♂ " MERCENARIA.
24 ♂ " EDULIS.
25,25a,b ♂ " ABDOMINALIS.
26,26a,b ♂ " UNGUICULATA.
27 TENAGOBIA SOCIALIS.

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